The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. XXI.*

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SECTION II.

PROSPECTING FOR MINERALS—BORING.

II.—THE CONSIDERATION AND DESCRIPTION OF THE SEPARATE BORING TOOLS.

Degousée's Free Falling Borer.—This consists of a long flat bar, 9 in. by 1½ in., with a vertical slit, 3 in. wide, extending nearly the whole length of the bar, which we will call the sliding bar. The lower end of the bar forms the cutting edge, or borer. At the upper end of the sliding bar, and connecting it with the upper rod, is the shears, which is moveable up and down over the sliding bar. Inside the shears there is a flat spring, which catches in a notch in the vertical slit of the sliding bar as soon as the shears have slid sufficiently far down over the sliding bar. In order to loosen the shears a weigh piece is provided, which is made in two halves, so that it can slide up and down over the sliding piece. Attached to the lower end of the weigh piece is a round rod, which passes through a hole in the bottom of the sliding bar, and which can thus rest on the bottom of the bore hole, so that up to a certain height the sliding bar can be raised without raising the weigh piece. Another rod is attached to the upper end of the weigh piece, and is prolonged to reach inside the shears. The upper end of this rod is made in such a form that when the sliding bar is raised to a certain height the spring is withdrawn from the notch in the sliding bar, allowing the latter to fall freely to the bottom of the bore hole. During the boring the weigh piece remains stationary, resting near the bottom of the bore hole by means of the lower rod, its weight offering sufficient resistance (to being raised) to cause the spring to be withdrawn from the notch.

Whenever there is a free falling apparatus used there must be a lower rod, or set of rods (usually only one), which forms the connection between the borer and the free falling apparatus. In general this lower rod, except that it is somewhat longer and heavier, is similar in appearance to any of the other upper rods. The length and weight of the rod are of importance; the former should be sufficiently great so that the free falling apparatus is high enough above the bottom of the bore hole to be out of the reach of the sludge and *debris*, which would interfere with the proper working of the apparatus: the weight should be made to correspond to the hardness of the rock and the length of the borer, too great a weight on the one hand running the risk of penetrating too far into and jamming fast in a soft rock, or breaking in hard rock; and too light a rod would greatly retard the speed of boring. The cross section of the borer should be somewhat larger than that of the lower rod. The length of the lower rod will depend in some measure upon the nature of the free falling apparatus used, the more complicated, such as Kind's and Zobel's, should have comparatively longer lower rods, as they are more likely to suffer from the sludge, &c., at the bottom of the bore hole. It should always be held as a fundamental condition that the borer, the lower rod, and the free falling piece should be so fastened together and guided in the fall that the whole preserves a perfectly vertical position, as only in this case does the lower set of rods best resist the injuring effect of the blow at the bottom of the bore hole. This is the reason why it is usual to make the lower rods in one piece, or one single rod of sufficient weight.

Klecka, in sinking a bore hole 6½ in. wide with his apparatus, made his lower rod 12 ft. long, and from 2½ in. to 3 in. square in section, which weighed 2½ cwt., the borer weighed 30 lbs., the total falling weight being about 3 cwt., with a fall of about 15 in., which are suitable figures for small bore holes, up to a depth of about 400 ft. For larger and deeper bore holes the weight may be increased 5 to 7 cwts. without increasing the fall beyond 18 inches.

The lower rod used by Kind with his apparatus is square in section, the edges being somewhat flattened, made of wrought iron; the section of the rod gradually increasing downwards from 3½ in. to 3⅞ in. square; the rod terminates below in a cylindrical end, which is bored and tapped, and into which the top of the borer is screwed; the uppermost length of 30 or 36 in. (called the neck of the lower rod) is turned quite circular, about 3 inches in diameter; the upper end of the neck terminates in a screw, which screws into a nut formed at the lower end of the free falling piece. The length varies between 15 and 20 ft., and the weight between 400 and 900 lbs. In calculating the weight of this lower rod it must be remembered that the effect of the blow is due to the combined weights of the borer, the lower rod, and of the falling pieces of the free falling apparatus. The effect of a blow in foot-pounds is found by multiplying the sum of the above weights by the fall of the borer in feet—that is, for a set of rods weighing 500 lb. the fall must be twice as great as for a set of rods weighing 1000 lb. A less fall has the advantage that the work of raising the whole of the rods is less, and a larger section of the lower rods enables them to withstand better the damaging effects of the blow. A suitable proportion for the weight of the borer compared with the weight of the lower rod is as 1 to 2. In the borings at Rohr, near Schleusingen, where Fabian's apparatus was used, the lower rod weighed 6 cwt., the falling piece of the free falling apparatus weighed 3 cwt., and the borer weighed 4 cwt., making a total falling weight of 13 cwt. The upper end of the borer rod in Kind's apparatus has a peculiar arrangement. Where the rod changes from a square to a circular section a ledge is formed, above which is a falling cap, and over this latter a guide is placed.

The falling cap, according to the construction which has been found to answer its purpose best, is made of several (usually three) discs of leather, which are fastened together by small bolts passing through the leathern discs and two smaller discs of sheet-iron, the whole together being something like a pump piston. The diameter of the middle leathern disc is almost exactly the same as that of the bore hole, the other two being somewhat smaller, in order in case of anything falling in upon the cap the middle leathern disc may give way more easily. The iron discs must be about 1½ in. less in diameter, in order that the leathern disc may be able to bend somewhat upwards and downwards. In the centre of the falling cap there is a round hole, so that the cap can slide up and down on the cylindrical part of the lower rod. The object of the falling cap is the prevention of several breakages of the rods, in case it should give way at one point. For if one of the upper rods should break, and the apparatus commences to fall, the descent will be checked the whole way down, if there is water in the bore hole, by the pressure of the water on the under surface. In this manner the velocity of the faling rods is prevented from increasing, and even checked, so that the rods on striking the bottom of the bore hole do so with a diminished velocity, and consequently less liability to breakage. It will be evident, however, that the falling cap will act unfavourably during the regular working of the apparatus by diminishing the effects of a given fall, and will, therefore, diminish the useful effect of the work at the surface. The guide is a wooden (oak) muff, which is provided along its length with four hollows, partly to offer less resistance and to allow a passage to the water, and partly to allow of anything falling in from the sides of the bore hole to fall to the bottom. This guide block is otherwise barrel shaped, 15 to 18 in. long, and is covered at the top and bottom with a small sheet of iron; the edges have sometimes a piece of iron running along them to prevent a too rapid wear, and to diminish the friction against the side of the bore hole. The object of this guide block is to preserve the free falling rods in a perfectly vertical direction; the muff, or block, being made barrel shaped, so that in sliding along the side of the bore hole the latter forms a tangent to the edge of the muff.

Similar guide blocks are also placed on the upper rods in certain cases, such as in boring holes of considerable dimensions in strong ground, or in running ground, when the hole has been lined, but more especially where no free falling apparatus is used. For such purposes they are only about 9 in. long, without the hollows—that is, completely barrel shaped—and are generally made in halves, which are held together by two slight iron hoops at both ends. Herr Rost constructs them of three or four flat iron bars, which are rivetted at the ends to two iron rings; they are usually about 3 ft. long, and in this shape bear the name of guide corb. They are placed on the rods at from 6 to 10 yards apart.

It is not unusual, and by many bore masters considered as essential to obtaining a vertical hole, to provide a second guide block on the upper rods, a little above the free falling apparatus.

TOOLS.—The Borer (proper).—In the ordinary chisel borer there are four principal parts—the blade, the cutting edge, the shaft, and the collar, together with the screw which fits into the nut of the lower rod. Such a borer will weigh about 20 lb. The breadth of the cutting edge depends, of course, on the diameter of the hole to be bored; the blade (of which the cutting edge is really a part) gradually narrows from the diameter of the bore hole to the size of the shaft. The height of the blade should not be made greater than is necessary for the durability and resistance of the borer to the blow, in order that the small broken pieces, or larger ones, may easily pass between the borer and the sides of the bore hole, and occasion no liability to wedging fast.

The edges of the cutter are best made perfectly straight, not convex, as is the case with many; neither pointed somewhat, as is the case with drills; in these cases, besides not striking the blow all over the bottom of the hole with the same force, the sludger is prevented from reaching to the bottom of the hole, and there is not the same effect obtained as with a borer possessing a straight edge. The sharpness of the edge will depend on the hardness of the rock to be bored through; the angle (measuring the sharpness) will be so much the greater the harder the rock happens to be; it will seldom exceed 70°. Care should be taken to have the borer perfectly symmetrical on both sides of the centre line. The borer (or edge of the borer only) is best made of cast-steel; if another steel is used the smith must not place the steel in such a manner that the fibres run parallel to, but at right angles to, the cutting edge, nor should the steel ever be heated at above a red heat, otherwise the edge of the borer will become brittle.

As the bore hole must be made perfectly circular in section in its whole length, it is necessary that all the borers should be made to suit one and the same template. The borer is tested by laying it in the template; a line should be placed in the template to show the middle of the chisel edge, so that one can more readily judge as to whether the chisel edge is at right angles to, and bisected by, the axis of the borer. In this will be found the explanation to the fact that sometimes the chisel bores a hole of a greater diameter than the breadth of the cutting edge, the borer not having been tested as to the position of the cutting edge with respect to the axis of the borer, so that when suspended from the boring lever the borer has an excentric position with regard to the axis, the smith having drawn out one side a little more than the other.

But however true and correctly made a borer may be, the resulting bore hole is seldom truly cylindrical; consequently an after boring must take place, to round off the irregularities and make the bore hole truly cylindrical. The following are some of the methods chiefly used for effecting this after boring:—

Ear or flap cutters (German, "Ohrenschneider," or "Laschenbohrer"), as used at Brandeisl, in Bohemia. The weight is about 30 lb. About 1 inch above the extreme cutting edge of the borer there are two ear or flap cutters, which are curved corresponding to the diameter of the bore hole. The breadth of the ear cutters is 3 in. These cutters coming after the straight edge of the borer, round off the hole, which is thus done at the same time, rendering a special after boring unnecessary.

Kind's Borer with Ear-Cutters.—As far as concerns the cutting edge, the ear-cutters, the blade, and the lower part of the shaft there is no very great essential difference between it and the one we have just described. The upper part of the blade is somewhat enlarged below the neck, in a direction at right angles to the cutting edge, and in this enlargement two after cutters are dovetailed. These are the cutters which are intended to round and finish off the bore hole. Through the shaft at this enlargement, and a little above the after-cutters, a bolt or two set screws are inserted. These pass through slits in two flat side links, which are fastened to a pair of narrow bars by means of hinges, the bars being fixed to the lower rod by means of counter-sunk screws. This arrangement is designed in case of the breaking of the screw of the borer, to prevent the borer being left at the bottom of the bore hole; it also prevents the possibility of the rods unscrewing. The breadth of the cutting edge is about 11½ in., and the length of the shaft below the enlargement about 33 in.; the diameter of the upper neck—*i.e.*, above the enlargement—is about 3⅜ in. to 4 in.; the screw is conical (about 1-16 in. in the whole length), and inserted in the nut of the lower rod to the depth at first of only four or five threads. In the space between the top of the screw and the end of the nut round pieces of sheet-iron, which exactly fill the space and are pressed together on screwing on the borer, are inserted; they serve greatly to retard the wear of the threads, and to render the whole stiffer and more effective.

The borers used at St. Ingbert, in the Rhine Palentiate, and at Kladno, in Bohemia, were entirely of cast-steel, the after-cutters being attached to a special intermediate rod, into which they were dovetailed, and made fast with ordinary bolts or pins. This special intermediate rod was provided below with a nut (into which the screw of the borer fits), and at the upper end with a screw, which fits into the nut on the lower rod.

The lower rods of Kind's improved free falling apparatus consisted, therefore, of three portions—a lower rod, an intermediate rod for after boring, and the borer proper, which were screwed together; this requires in any case a very careful and strong construction of the screws, &c., because they are subjected to all the concussions of the borer; but Kind's arrangements possessed the advantage that the parts which were most subjected to wear could readily be taken out and replaced with a small expense of time and money, and they could be used with the wing borer when it was necessary to widen a bore hole below where it had been lined. Herr von Seckendorff in the borings at Schöningen, in conjunction with Kind's free falling apparatus employed a borer slightly different in construction. The distance across between the cutting edges of the ear-cutters is about ⅛ in. less than the length of the bottom edge of the borer, so that the borer strikes the bottom of the bore hole only with the bottom cutting edge. The whole of the lower end of the borer is made of cast-steel, and then welded on to the shaft. At a height of about 30 in. above the bottom of the borer the shaft is enlarged until its breadth is only about from 2 in. to 2½ in. less than the breadth of the bottom cutting edge of the borer, and this is for a length of about 10 in., when the shaft gradually narrows until it becomes perfectly cylindrical, and ends in a conical pin, which fits into a socket in the lower rod, to which it is cottered.

The enlargement serves for the insertion of the after-cutters, which are about 3⅜ in. broad. These fit into a dovetailed groove, which is about 3½ in. wide on the one side and 4 in. on the other. As the borer generally works from the right towards the left the wider part of the groove is on the left side, so that the friction tends to wedge the cutters in still tighter. If the boring proceeded in the opposite direction there would be a great liability of the after-cutters becoming loose and falling out. These after-cutters are placed in the same direction, and not at right angles to the ear-cutters, which makes the testing of the position of the after-cutters much more accurate. By means of the edges of the chisel borer, of the after-cutters, and of the guide on the lower rod the lower free falling portion is guided in three places in a perfectly vertical direction. The advantage of having a socket and cotter joint instead of a screw joint lies in the fact that this latter is more readily loosened and replaced again exactly in its former position.

Formerly Herr Kind made use of the after-borer in the form of a +. It consists of four cutters, placed at the extremities of the four arms, which are welded to a square (or conical) collar; this latter passes over the shaft of the borer just below the screw and above the shaft collar, and is held fast in this position when the rods are screwed together. Although for all borings of considerable diameter and even of great depth the ordinary borers we have described together with the after borers will completely suffice, still there are a great number of other borers which have been designed to meet special varieties of the rocks or locality; some still remain in use, on account of habit, but not a few have had their origin in the vanity of the bore master, who has wished to obtain the credit of having devised something new. Some of these we shall simply mention, and others describe. The cross chisel (or club) borer, the cutting portion of which consists of two simple chisel-edges placed at right angles. Such a borer is generally used in a rock which is of very irregular hardness and in hard stratified or laminated rocks, where the inclination is very considerable. When the inclination is under 15° the speed of advance is greatly diminished by the use of such a borer. The Z borer, the edge of which corresponds to the letter Z. The S borer, which possesses a S-shaped cutting edge. The piston borer, which is simply a cross borer, whose cutting edges are concave, so that they form five points (four at the extremities of the cross-cutting edges and one in the centre), the centre point projecting ½ in. beyond the plane of the other four. The crown borer, which is likewise a cross borer with concave cutting edges, the concavity, however, being so slight that a depression is formed in the centre of the borer. All these varieties, having for their object the preserving of a perfectly circular form of the bore hole, are now old fashioned, and are supplanted by borers with after cutters, which latter cost less in making, and are more easily repaired. In the case where a bore hole is being sunk without ear cutters or after-borers—that is, with a simple chisel—the bell borer is often used for finishing off the hole, so as to give it a perfectly circular section. This consists of a bell-shaped instrument about 4 in. high, the lower end forming a sharp circular cutting edge; it is welded to the ends of a strong fork 16 in. long, which connects it to the lower rod. The use of a separate instrument for rounding off the bore hole leads to such a great loss of time that it is nearly always advisable to finish off the hole by the use of ear-cutters.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath Dr. VON GRODDECK, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

MINING LEASES.

The following is an abstract of a paper read by Mr. R. SYMONS, of Truro, at the Mining Institute meeting last week, on the subject of Mining Leases:—

Mr. SYMONS, in his paper, said—You are aware that in very ancient times, probably pre-historic, tinners had a right, from a recognised custom, to enter upon any common or waste land in Cornwall, and perhaps Devon, and mark out for themselves a piece of ground which they called "tin bounds," within which they were at liberty (after due proclaimation at the Stannary Court, and three months' notice to the lord) to work for tin (the only metallic mineral known in Cornwall), paying to the owner of the land 1-15th part of all the ore raised, as his dole dish, or royalty—commonly called "dues" in this county. The custom as to tin bounds was confirmed at a convocation of 24 Stannators, or parliament of tinners, held at Truro on Aug. 25, 1752. Tin bounds are not now necessary, because nearly all the landowners are willing to grant mining leases. The greater part of the land in this county is in the hands of comparatively few owners. Lord Falmouth, Lord Robartes, Mr. Basset, Lord Mt. Edgcumbe, Lord Clinton, Lord St. Germans, Sir R. R. Vyvyan, Messrs. Williams, Duke of Leeds, Rev. St. Aubyn H. M. St Aubyn, and a few others, own a considerable area in Cornwall. All those owners have solicitors, stewards, and mineral agents or tollers, to whom, or to one of them—generally the toller—persons desirous of having liberty to work for mineral must apply. Until a late period the tollers of, I believe, all the lords had authority to grant licenses for six or twelve months to any persons of whom they approved, without consulting their principals; and the fee for a license was two guineas. Now, some landowners require that the applicant's name shall be submitted to and approved by them before a license can be granted. In some cases the steward has power to determine the fitness of the applicant to become a licensee. In the case of a noble lord who owns 36,000 acres in Cornwall, the procedure is this:—In the first place application to the mineral agent, with three names as licensees. The agent submits these names to the lord's solicitor, who, if he approves of them, sends them to the lord, expressing his approval; and the lord thereupon, as a rule, authorises the granting to those persons, and for the license the solicitor charges three guineas. This round-about procedure militates against mining, because the solicitor and the lord require that the three persons shall be men of means, to carry out the works, erect engine, &c. As some of the applicants are poor miners, they often find a difficulty in securing substantial men to join them, and by that means the working of the mine is deferred. I have known cases of the kind. Many of the mines now at work were originated by poor men who took licenses when they were more easily obtained, and afterwards induced capitalists to invest their money. There is, probably, a loss to the lord referred to from a strict adherence to the rule he has thus laid down. The lease is usually granted either to the licensees or to two or more persons of their nomination, and approved by the lord, for a term of 21 years. In a few mines in Cornwall second leases for similar terms have been granted to the same parties or their assigns. In a less period than 21 years most mines have been tried and abandoned. In a few cases a third and fourth lease has been required—Dolcoath to wit. But the lord is not legally bound to re-grant to the same parties; and in the case of the Consolidated mines, in Gwennap, the lords granted the second lease to other parties, but it was regarded by the public as unhandsome conduct towards Messrs. Taylor and Co., and it accelerated the fall of the mines, because the company, finding that they could not obtain a fresh lease, did their utmost to exhaust the reserves before the expiration of their tenure. The new lessees, seeing that such was the case, purchased the machinery, materials, and the remainder of the company's interest for 100,000*l.*, which they had subsequently reason to regret. After commenting on mine leases as they were, their verboseness, their too great cost, inaccuracy of description frequently, as in the case of South Frances and West Basset, which led to a heavy lawsuit, Mr. Symons called attention to the covenants contained in mining leases, particularly those adopted at Tehidy office, and said some of them were impracticable, and if the lords were to take advantage of the breaches of covenants most mining lessees would be quickly ejected. But in some respects the Tehidy lease was more reasonable than modern leases in general, because it demanded no rent, and left the value of land destroyed to be settled on the basis of a valuation. I speak, secondly, of mining leases as, in my opinion, they should be.—1. Leases, instead of occupying two or three sheets of parchment, as most of them do (when not printed, as Lord Falmouth's are), should be reduced to half the amount of words. It would be no great presumption to undertake to draw a mining lease equally effective in law with half the number of words which are now employed in most leases.—2. The charges for leases (of speculative mines at least) should be reduced. The lords might order that to be done, as I knew one lord to do. In rich mines the present charges would not matter.—3. There should be no rent charged in mining leases. A mining lessee is no user of the land, the farmer of which pays the rent for it, which is generally ample. Why should a lessee pay a rent for nothing? The minimum rent is one the mine leasing encumbrances.—4. The lessee should not be charged 100*l.* and 50*l.* per acre respectively for waste. He should be required to covenant to pay merely for the value he has taken out of the estate by the waste committed, and that at the end of his tenure—not before; the value to be settled by arbitration, if necessary. Meanwhile he should pay an annual rent for the land destroyed and occupied, according to its value for farming purposes. He should also compensate the tenant for any inconvenience occasioned by mining in his tenement.—5. All the buildings erected within the sett by the lessee or the company should be his or their property for the same term of years as that usually granted to lessees of houses on the same estate, so that when the lessees cease to mine within the land the houses might be sold, removed, or demolished by him or them at discretion.—6. Dues or rent to the lord should be paid out of profits only—that is to say, when the lessees, out of the returns from the mine, have been reimbursed of all their outlay, the lords should share with them in the profits of the works. But in consideration of the lord having his rent out of profits only, and

not out of all returns, he should have a higher rent or royalty than that usually paid at present. Instead of 1-20th, 1-18th, or 1-15th, he should have (say) 1-10th of all clear profit. I think that most of you will concur in admitting the reasonableness (the equity) of the above propositions or suggestions. The landowner who does not choose to speculate in his own land should encourage those who are disposed to do it, and should not profit out of their losses, as they now do in some places. The time has arrived when better terms than the present are necessitated by the circumstances in which mining is now placed. This is a time of unprecedented depression; and owing to the ruinously low price of tin, few mines are self-supporting compared with those which are "calling" on shareholders for money, and I confess that I see little or no prospect of any increase in the price of that staple commodity in our productions, although many sanguine miners take a more hopeful view of the situation. We have too much indulged the belief that our little peninsula was the almost exclusive stanniferous district in the world; the foreign discoveries coming into competition with our produce have dispelled that illusion. It is not altogether the fault of the lords that better leasing terms have not heretofore prevailed. It is more the fault of the lords' agents and of the lessees themselves than of the lords. Those agents have seen the importance which applicants for grants have attached to the acquisition of a sett, also that a grant has been looked upon by them somewhat in the light of a favour, and that any terms would be acceptable; they, therefore, impose terms too stringent, too favourable for their clients, and to which the applicant makes no objection. How is that? Because many of the applicants for leases have neither the intention nor ability to work the mines themselves. They take the leases to sell, so that all the liability as to rent, royalty, &c., fall upon those who buy. Although it has been, in a great measure, the fault of the lessees that more reasonable conditions have not characterised mining leases, I think that the lords should instruct their agents to draw leases with covenants more in conformity with reason. They should adopt the motto, "Let reason rule." The lords can afford to be liberal, but I go upon the ground of equity only. I am aware that some of the lords have, in some cases, shown their liberality by not enforcing, but remitting or postponing during pleasure, the payment of the dues by shareholders in poor mines, and in other ways, and no one more so than Mr. Basset, who has always taken a deep interest in mining affairs, and practically exhibited his sympathy with the suffering miners operating in his estate; but lessees would prefer that the mining leases from all the lords should show a spirit of liberality or consideration, by their containing reasonable covenants, so that the shareholders might not stand in the position of mendicants begging consideration and help from the lord. The reformation just indicated will, I hope, commend itself to your approbation. Mr. Symons then briefly referred to agricultural leases, inclosure leases, and building leases, and pointed out various objections to them in their present form. The farmer's lease was an antiquated thing which conveyancers had been content to copy for successive generations; and leasing on lives was a bad custom, but was, he believed, peculiar to Cornwall. It greatly hindered the building of houses. He concluded by saying—If the discussion which my remarks may elicit from this audience should lead to a reasonable readjustment of the leasing conditions, the Cornwall Mining Institute will have accomplished a good which will immortalise its name. The question may be asked, How is this to be done? The lords are independent of mines, and, therefore, are in a position to dictate their own terms, which you may accept or refuse. True; but lords are not, as a rule, unreasonable persons. They are open to receive representations on any matter affecting the miner, the farmer, and the public in general. This Institute, I understand, contains the names of landowners as well as gentlemen connected with mines, commerce, and factories; and suggestions emanating from it would, I doubt not, be respectfully received by the Cornish lords in general. I submit the subject to your intelligent consideration.

ROTARY BOILERS AND ENGINES.

Some twenty years since considerable attention was directed to the question of rotary boilers, owing to the success obtained with the boiler invented by Dr. Grimaldi, and it appears that the subject is again being revived. The first part of the invention and improvements in this class of boiler, invented by Mr. C. W. PIERCE, of New York, consists of the combination with the shell and the flues nearest the shell, or with all the flues of buckets, cups, or other devices, arranged and adapted for elevating water, and maintaining it in contact with the shell and the tubes, or some of them, during the passage of the same in that part of their course which is above the water level, for the protection of the shell and the tubes from the heat, also for preventing undue expansion and contraction, and also for distributing the water and keeping it in contact with the metal for the more rapid generating of steam. The second part of the invention consists of arrangements in rotary boilers, either of an annular flange at one end of the boiler and a recess in the wall at the other end, or of an extension of that part of the boiler containing the inner tubes beyond the part containing the outer ones, in connection with the recess aforesaid on the wall of the furnace at the other end of the boiler, for effecting the return of the heated products of combustion through the inner set of tubes. The third part of the invention consists of the arrangement of the feed-water pipe to extend downward to or below the water level, and the steam-pipe to extend upward from the hollow trunnions through which they enter the boiler, the one for keeping the feed water from contact with the steam to avoid condensing it, and the other to enable the steam to be taken out drier than it otherwise would be.

In connection with rotary engines, in which the steam is superheated on its passage through the engine, and after the impulsive force of the elastic fluids (moving at high velocities) has been utilised, and their temperature thereby reduced, they are again superheated and re-introduced into the cylinders, saturated steam being only employed in starting the engine, and to supply from time to time the loss by leakage, some improvements have been invented by Mr. James Apperly, of Stroud, Gloucestershire. The superheater and rotary engine are combined in one, and consist chiefly of an outer stationary casing, supported upon a suitable bed-plate or foundation, and an inner revolving drum or cylinder, mounted upon an axle fixed on the bed-plate. The outer metal casing is composed of, or has formed within it, three annular concentric chambers, channels, or passages. The outer and inner channels or chambers are the superheating chambers, and the middle one forms a part of the flue for the passage of heated combustible gases, or it may be the chamber in which they are consumed. The inner superheating chamber is divided by partitions arranged tangentially, the space thus enclosed being necessarially triangular, but with the apex of the triangle next the periphery of the drum or cylinder. In the periphery of the metal cylinder or drum at suitable intervals apart are formed pockets triangular in cross section, the apex of the triangular spaces being outwards. The pockets in the periphery of the cylinder are also cast, formed, or set tangentially, and in the same direction as the partitions of the inner chamber of the casing. They are provided with openings extending laterally on both sides into annular passages formed within the cylinder, and which at intervals have other radial openings into an annular passage circular in cross section, and around the cylinder. The half of this passage is within the periphery of the metal revolving drum and stationary casing respectively. From this circular passage openings are made into annular exhaust or cooling chambers formed within the ends of the metal casing, and from these chambers lead six or more pipes which pass through the combustion chamber or channel, and through the superheating steam chamber. These pipes terminate in conical nozzles, which project down into the cones, which form exit passages for the superheated steam from the outer to the inner chamber.

In place of thus arranging the cooling chamber this latter may be allowed to occupy the whole of the interior of the central drum or cylinder, and the steam may be drawn from thence by a suitable construction of hollow axle in a manner well known. The sides of these conical nozzles (near the ends) are perforated with a number of holes, which are drilled diagonally, or made in the direction of the moving elastic fluid, and the superheated steam in its onward rush from the outer to the inner superheating chamber will draw in the expanded and cooled steam (which is of greater density than the superheated steam) through the diagonal perforations of the conical nozzles. This combined steam passing through the engine in a constant stream will act by the force of impact on the bottom of the inclined pockets of the drum or cylinder with the leverage due to the diameter of the cylinder. In starting the engine the ordinary saturated steam is to be admitted into the outer annular channel, and the gases of combustion having been ignited in the middle chamber or combustion chamber until the whole of the outer case becomes heated sufficiently to superheat the steam. The admission of saturated steam may be cut off and only again admitted at intervals to make up the loss by leakage. This may be effected by any ordinary valve worked by an eccentric from the axle of the cylinder.

Sometimes, in place of causing the rush of steam to impinge upon the lower surface of the pockets, a helical coil of rope is wound around the periphery of the drum or cylinder, or a helical passage is built up upon the cylinder. The sectional area of this helical passage is largest at the periphery of the drum, and gradually tapering to its end near the centre of the cylinder. The end of this helical passage has lateral openings leading into the exhaust or cooling chamber. The opening or mouth of this helical passage will thus receive the rush of highly-heated elastic gases as it moves in succession past the mouths of the inclined partitions of the inner superheating chamber or channels, and the steam in its passage through the first portion of the helical passage will be caused by friction at the sides of the passage to carry round the drum. To further aid in effecting this object the frictional surface of the interior of this helical passage may be increased by placing within the same corrugated plates, stops, studs, or supports. The steam as it parts with its heat and becomes more dense in its passage through the decreasing sectional area of the helical passage will thus provide itself with an elastic pillow, and an increase of friction as it is forced through the final coils of the helical passage. The force of the steam will thus be utilised before it issues from the opposite end of the passage into the exhaust or cooling cylinder, to be again employed as before.

UTILISING SLACK FOR STEAM FUEL.

The many advantages to be anticipated from the utilisation of small coal and slack for the generation of steam have induced inventors to give much attention to the subject, yet although many ingenious contrivances have been from time to time introduced, none of them have come into general use. To obtain in practice the economic results which theory would lead one to anticipate, Mr. GEORGE K. STEVENSON, of Valparaiso, patented a very simple and efficient arrangement some two years since, and during the past few weeks the invention has been in practical use for ordinary work under a large boiler in London. The principle of the invention consists in reducing the fuel to an almost impalpable powder, and the introducing it into the combustion chamber with exactly the quantity of air necessary to secure complete combustion. The fuel is reduced to powder in a disintegrator, and the powder is placed in a metal hopper, the bottom of which is formed of a cylinder. As the cylinder revolves the coal dust falls from the grooves into either an iron or metal tube, of square, oblong, or other suitable section, one end of which is in connection with one of Root's patent blowers, and the other end is formed with an oblong outlet, being of such shape and size as may be requisite; on the top or upper side of this tube there is an opening under the grooved cylinder, which cylinder works on this tube in proper bearings, so that it may revolve across the length of the tube, the whole may be on wheels in stationary fire-places or fire-boxes, and in steamers may be suspended from overhead, so as to admit of being easily withdrawn for lighting and kindling the fire, or for examining the furnace; but in practice a stationary pipe is used without inconvenience. The wheels and standards maintain the apparatus at the proper height of the openings for the admission of the fuel. The end of the tube which enters the furnace is protected by fire-brick, which must be of the proper shape and size to effectually close the entrance to the furnace when in place, the crevices are to be stoped with fire-clay, all the other openings to flue or boiler, or for admission of air in the end usually fired from, are to be effectually closed with fire-brick, fire-clay, or other equally effective stopping. The usual grate or furnace bars are done away with, and instead of them a bottom or hearth is constructed of suitably shaped fire-brick. On such bottom is placed a lining for sides of furnace, but having a space between said lining and sides allowing the top of furnace to be bare; all the fire-brick lining is perforated with round, oval, square, or oblong holes or slits, or it may in some cases be entire, or the lining can be made in sections of a similar shape to the retorts used in the making of gas, such also to be either entire or perforated. The object of this lining is to form a combustion chamber inside the flue of the boiler, therein to ignite the mixed fuel on its entrance from the heat acquired and retained in the fire-brick from the kindling previously consumed, and when once lighted the fuel will continue to burn by the feeding to same, the perforations allow the heat to be exercised directly on the surface of the fire-box, and thereby add greatly to its power; the length of this lining or combustion chamber may be about the same as the usual length of the grate-bars, so as to thoroughly ignite the fuel ere leaving this to pass through the tubes or flues.

The grooved cylinder may be driven by means of worm on the axle of blower to connect by a cog wheel on a shaft, working on proper bearings, with a worm on this shaft to a corresponding cog wheel on the end of the shaft of the grooved cylinder, so that this cylinder thereby is caused to revolve, and deposit in the tube a certain quantity of coal dust, to correspond with the air introduced by the blower, and to be carried by this air into the lining or combustion chamber. A Root's or Baker's blower is preferred, on account of the facility of measuring the quantity of air admitted per revolution, but this can be substituted by any other which can be relied on for equal facility for measuring the air. The mouth of the tube in the chamber can be made to deliver the mixed fuel (coal dust mixed with air) by one of various openings, either with a twist as a rope, plain, direct, or divergent, so as to have the fuel strike on the red hot or white hot lining of the furnace to ensure the ignition, and thereby secure all the advantages from the combustion being perfect and entire. The air-supplying apparatus can be placed in any part of building, stoke room, or steamer's hold, but it must be so as to ensure the supply of the air with that of the coal dust or powder in the appropriate quantities.

The cylinder is especially constructed to ensure the accuracy of the delivery of the powdered fuel, being so made as to fill a box, and turned and fitted in it so as to be practically air-tight in it; this cylinder is made with recesses fitted with sliding teeth or pistons, which teeth have edges or flanges working in an eccentric groove in each side of the box; these teeth or pistons are thus caused to pass below the surface of the cylinder on the top, or when in contact with the coal in the feeding tube, and the coal or other powdered fuel in the vertical feed tube, and in the upper cross feed tube, by the force of gravity fills the spaces thus made, and is so carried by the revolving of the cylinder until within the tube, where, by the eccentric movement, these teeth are forced out and brought even with the surface of the cylinder, and their charge deposited in the tube, so that by this proceeding there can be no clogging of the quantity, neither can any moisture, should the powdered fuel even be wet, prevent the quantity of fuel from being deposited per revolution. Another advantage of this cylinder so arranged is that there will be no air escape from the tube to the coal feed, as the side feeding is filled with the powdered fuel, and the teeth fill the space on the return to receive the charge; the revolutions of this cylinder being so comparatively slow, there is very little wear to the same.

In the apparatus at present working in London the mixed air and coal dust has to travel 6 or 7 yards through a tube of about 6 in. diameter, yet a very regular and efficient supply is kept up, and a good clear body of ignited gas is maintained in the combustion chamber. The essential features of the invention appear to be the use of a blower delivering a known quantity of air instead of a fan, which in similar inventions previously introduced has not proved efficient, the grooved measuring cylinder delivering known quantities of fuel into the air current, and the introduction of the fuel into the combustion chamber in such a manner as to prevent clogging before it is properly burnt. The invention is one which promises to be a success, especially where small coal is obtainable at a low price, and is, therefore, worthy of a fair trial.

AIR COMPRESSORS AND ROCK DRILLS.

The improved double air-compressing machinery and rock drills manufactured by Mr. J. G. Cranston, of Newcastle-on-Tyne, have now been so extensively and successfully introduced in mines, tunnels, quarries, and elsewhere that, although they have been frequently noticed in the *Mining Journal*, reference may again be made to them. The drills can be seen readily at any time in practical operation in the principal mines and quarry works around Newcastle, where they are drilling the shot holes at a cost of less than one-fourth that of hand labour. On Friday last one of their drills put down 17 holes, averaging 6 ft. deep each. This work is regularly being done with the drills every day at the West Moor Limestone Quarries, and frequently they exceed this number of feet per day. The machine has recently drilled over 7000 ft. of 2½ in. diameter shot holes in limestone rock, accomplishing this extraordinary work in four months' run, without any repair or renewal of parts. Five of these drills are employed in the limestone quarries situated near to Ferryhill, on the North-Eastern Railway, and from the fact of their doing such excellent work at these quarries more machines have been put recently into operation in the adjoining districts. Holes which formerly cost 1s. per foot to drill by hand are now regularly drilled by the machines at a less cost than 2½d. per foot. The machines are so constructed that the drill tool can be rotated substantially and readily by hand, in proportion to the nature or hardness of the rock being drilled, and can also be prevented from rotating quite readily when desired. As there are no pawls, springs, or ratchets to get out of order, the machines are substantially constructed, and are most thoroughly reliable. The numerous testimonials received are sufficient to show how highly they are appreciated by the users, either for quarrying, tunnelling, or mining operations generally. Mr. J. Tait, manager of the East Hetton Colliery Company's quarries, says "he finds the cost of drilling by these machines is less than one-fourth of that of drilling by hand, and by the use of the drills he has been enabled greatly to enlarge the output of stone without increasing the number of men employed." Mr. Alfred Critchett, secretary of the Eberhardt and Aurora Mining Company, writing on April 13, says—"I have much pleasure in stating that the drills supplied by you to this company are doing excellent work. The tunnel—7 ft. by 9 ft.—is driving about 40 ft. per week with two drills, at a cost of about 6l. per foot. Captain Drake in his last report questions whether it is possible to procure drills to surpass them in their efficiency for the purpose. This tunnel will be over 6000 ft. in length when completed, of which they have already driven more than 1000 ft. during the last seven months."

The air-compressor used with these drills has one steam-cylinder, with one double-acting air cylinder on each side of the steam-cylinder; the three are all coupled direct to the fly-wheel shaft, so that no gearing of any kind is employed. The advantage of this arrangement is that the working strains are easily divided on each side of the steam-engine centre crank, which arrangement much reduces the wear and tear, and should an increased air pressure be required double the pressure can be obtained with one cylinder by simply lifting the suction valves of the other air cylinder out of gear; while the steam-cylinder crank being set almost at right angles to the cranks of the air cylinders the most effective power of the steam-cylinder is obtained at the point of the greatest compression in the air cylinders. Each air cylinder has two gun-metal suction and delivery valves bolted closely thereon, the casing of the suction valves and the valves themselves being overhanging, and fixed to the side of the cylinder. They are provided with water cups close to the inlet, so that a bead of water constantly surrounds the valves, keeping them cool, and providing at the same time a certain quantity of water to the air cylinder, which acts as a lubricant and packer between the piston and valve spaces, as it is alternately drawn in by the action of the piston, so that almost the whole of the compressed air is delivered into the air receiver at each stroke of the piston. The delivery valves are bolted on to the cylinder top at right angles to the suction valves, and are completely immersed in water, so that they are not affected by any heat evolved by the compression of the air. The valves are nearly of the shape known as the mushroom valve, and are made with spherical faces. They can be run at a very high speed when required, the valves acting with the greatest certainty at a pressure exceeding seven atmospheres. The whole of the machinery is firmly mounted on a strong cast-iron bed-plate, so that little or no foundation is required. When required for mountainous districts, where the carriage on road is difficult, the bed-plate is reduced in weight, in order to facilitate its carriage.

PUMPS.—The invention of Mr. A. FITZMAURICE, of Carlow, consists in an improved arrangement of double-action lever force pump, and method of working the same by the weight of a man or other person sitting on one end of weighted rocking lever. In carrying out the invention he employs a suitable pillar or upright, the top of which forms a fulcrum, and receives a rocking lever or beam, one end of which is counterweighted, and the other end of which is provided with a seat for the person whose weight is to operate the pump. The under side of the rocking lever is connected by means of suitable connecting rods with the piston rods of a pair of single action lift and force pumps, having proper air vessels, and rising main pipes for delivering the water in the required direction. The suction pipes from the pumps are connected together into the single suction pipe, which passes into the well or tank from which the water is to be raised. A spiral or other suitable spring may, if required, be placed under the end of the rocking lever on which the person sits to assist the action. By this arrangement it will be understood that any person seated on the end of the said rocking lever may easily set it in motion, so as to alternately work the said pump and cause them together to form a double-acting lever force pump. The supporting pillar and pumps are sunk in the ground so that the rocking lever shall be only at a suitable height above the ground level.

A NEW PATENT IN TIN MANUFACTURE.—A valuable patent apparatus, known as Messrs. Taylor and Company's Mechanical Black and White Pickling and Swilling Machine, is being introduced into the manufacture of tin-plates. The machine has been adopted at Llantrisant Tinworks, while Messrs. Thomas, Lister and Co., of the Carmarthen Tinworks, have used it to the utmost advantage since October, 1875. The old system of black pickling by hand, besides being injurious to the health of the employés, lead to a great waste of acid, which was absorbed by the sawdust placed on the plates, and the sawdust itself, by adhering to the plates, caused a great many "wasters." Moreover, a large quantity of acid was necessarily discharged into the river. Messrs. Taylor and Company's machines remedy these evils. The black pickling machine, some 15 ft. by 5 or 6 ft., consists of a trough or bath, containing some 8 or 9 in. of the diluted acid. At each end there are yellow metal rollers upon which a number of endless chains continually travel. At one end a couple of lads stand and place the plates singly, and of course without sawdust, under the rollers, and the plates are carried slowly through the acid by means of the endless chains, and are delivered, as a rule, thoroughly cleaned to a couple of girls who stand at the other end and receive them. These girls, however, examine each plate, and those from which the oxide has not been entirely removed are separated from the others and passed through the bath a second time. The journey through the bath is travelled in three minutes; and although the movement does not appear rapid, the lads place the plates beneath the rollers as fast as they can move their hands, and the number passed through during the day is very great. The saving in labour and material is enormous. It is calculated that by the adoption of the black pickling machine there is a saving of 2 lbs. of acid per box. There is also a considerable saving of iron. The plates are then passed on through the intermediate stages, and are taken to Messrs. Taylor and Co's patent mechanical white pickling and swilling machine, in most respects similar to the one already described. There is a similar trough or bath containing diluted acid, through which the plates are carried upon endless copper chains, and are passed on to a swilling machine at the other end, where they are received by a couple of girls. As in the process of black pickling, the plates are put under the brass rollers singly, and without sawdust. The acid comes into immediate contact with every portion of the plate, which travels through the bath in about one minute and is delivered into the swilling portion of the machine. Here each plate passes

between two perforated pipes, which deliver a strong force of water on either side the plate, which is then taken away, perfectly cleansed of all oxide or dirt of any kind, by girls who stand there ready to receive them. The acid having been washed off thoroughly, the plates are put on their edges into troughs containing sufficient water to cover them, and here they remain awaiting the next process, which is the tinning. It is calculated that Messrs. Thomas, Lester, and Co., by the introduction of these machines into their works, have effected a saving, in time, labour, and material of more than 50 per cent; and practically there is no acid thrown into the river.—*South Wales Daily News.*

MINING AND STOCK EXCHANGE NEWS OF THE WEEK.

Messrs. F. W. MANSELL and Co. (Sworn Stock and Share Brokers, 43 and 43A, Palmerston Buildings, Old Broad-street, write to us as follows:—

ISABELLE (Gold and Silver).—Numerous have been the enquiries especially by Exchequer shareholders, who justly enough pin their faith upon Mr. Lewis Chalmers, as to the actual statement made by that gentlemen concerning the value of the Isabelle Mines. We presume that in due time the directors will obtain from Mr. Lewis Chalmers regular weekly reports upon the property. In the meantime, we may state that the Isabelle Mines are situated in Scandinavian Canyon, 7292 feet along the toll road, which, commencing at the intersection of Main and Third Streets, Silver Mountain, follows the canyon until it terminates at the works of the famous I.X.L. Mine, about 300 ft. off the road in a north-easterly direction. The outcrops—the altitude of which is 530 ft. below the Exchequer, and 200 ft. below I.X.L.—are continuous, though intermittent—that is, they have, like most outcrops, become covered over in some places by the debris of the superincumbent country, in others by rank vegetation, but in both cases distinctly traceable along the whole course of the claims, and in several places showing ruby silver. The croppings are bold, massive, and well-defined, and present all that can be desired in the shape of a mineral outcrop, the country rock being a fine-grained porphyry.

Upon the Pine Tree lode a drift has been run on the footwall—or rather in it, sometimes out of it—a distance of 110 ft. The mouth of this drift is just 800 ft. above the level of Main Street, Silver Mountain. This ledge is 3 ft. wide between the casings, dips east at an angle of 71°, and is well-defined. At about 84 ft. from the mouth of this drift, Mr. Chalmers found—about the centre of the roof—a band of quartz with ruby silver, from which he broke off several pieces, which he assayed for silver with the following results:—No. 1 gave $105·78; No. 2, 30·96; No. 3, 59·34; No. 4, 167·70; No. 5, 152·22; No. 6, 136·74. Mr. Chalmers says, "This tunnel is not more than 35 ft. under the surface where I obtained these samples, but the richer specimens were selected." Beyond this point the tunnel has caved considerably, but it is open enough to show that the ledge carries an unmistakeably "true fissure" character.

Upon the Adolphus lode several prospecting shafts have been sunk, and from one of these Mr. Chalmers took several pieces, which assayed in silver as follows:—No. 1, $51·60; No. 2, $57 75; No. 3, $37·41; No. 4, $95·46; No. 5, $69·66; No. 6, $43·86. The character of the quartz here is very fine, although the assays do not come up to the Pine Tree, but the specimens assayed were all more or less oxidised, and too near the surface to be protected from disturbing and disintegrating influences. Mr. Chalmers says:—"I will say this, that during my more than eight years residence in this country I have seen many gold and silver-bearing mineral outcrops and ledges, but I have never yet met with top-rock to give the same results."

The Pine Tree ledge crosses the I.X.L. ravine, and re-asserts itself in the most emphatic manner in a fine masterly outcrop on the other side, from which it can be traced beyond the lines of its northern boundary over the ridge of the porphyritic rocks, where it has been located as the "Buffalo Bill." The Pine Tree runs for some distance almost parallel with the I.X.L., approaching it in one place within 200 ft., after which, deflected possibly by the canyon, it breaks away gradually into a more northerly course towards the Adolphus. The mouth of the Pine Tree tunnel is about 730 ft. in a south-easterly direction from the mouth of the I.X.L.

The outcrops of the other four lodes are very promising, and all carry gold and silver. It seems probable, and this is the opinion of Mr. J. J. Cooper, that these may prove to be "feeders" of the "Big Mother Lode"—the Adolphus. At the same time, there is no reason why they should not be independent gold and silver-bearing lodes, but, whether they are so or not, there are too close not to belong to the owners of the other two, and may prove valuable adjuncts. The county treasurer (a Scotchman, on whose statement Mr. Chalmers puts every reliance) states that specimens from the Menodocino shaft, at a depth of 20 ft., taken by him in the fall of 1864 to Sacramento, and assayed by an Aberdeen man (Mr. John Scott), one of the best assayers and metallurgists on the Pacific Coast, yielded over $120 per ton; the shaft is now full of water, but the outcrops are such as experts would expect to cover good bodies of ore.

To show how inexpensively and rapidly this property may be developed and brought into a dividend paying condition, it may be mentioned that by simply running 625 ft. along the Pine Tree a depth will be attained of 231 ft. on that ledge, and 248 ft. on the Adolphus by a cross-cut of 300 ft. But Mr. Chalmers recommends that the main tunnel on the Pine Tree should be run 820 ft. before cross-cutting; 370 ft. of cross-drift will be under the prospecting shaft on Adolphus, at a depth of 288 ft. on the Adolphus and 305 ft. on the Pine Tree. Drifts could be run north and south on the ledge, thoroughly prospecting the Adolphus, while the Pine Tree exploration could be continued northward to a depth of 712 ft., the depth obtained on the other being 435 ft.

The other ledges can be prospected by a perpendicular shaft sunk to a distance of 200 ft., and a cross-drift at that depth run east and west through the whole of them; this work, although desirable, may be postponed until the other works have been accomplished.

Mr. Chalmers' estimate of the cost of the works recommended is as follows:—

720 ft. of tunnel along Pine Tree	$ 8,640·00
100 ft. of old tunnel timbered and enlarged	200·00
370 ft. of cross-cut between Pine Tree and Adolphus	4,440·00
500 ft. of drift on Adolphus north and 500 south	12,000·00
305 ft. of air shaft	6,120·00
Stoping and extracting ore	4,000·00
Blacksmith's shop and ore house	1,0 6·00
Dwelling house for the miners	2,000·00
Mining plant, cars, tools, and timber for stopes	2,000·00
800 ft. of road from toll road to mine	600·00
Making a total of	$13,000·00
	(say) £ 8,800

Almost all the samples which Mr. Chalmers assayed from these ledges show more or less ruby silver. This may give place in depth to black sulphurets, a more valuable silver ore, but whether ruby silver, silver glance, or black sulphurets, these Isabelle Mines (says Mr. Chalmers) will, when properly worked, amply repay the shareholders.

The following is the report of Mr. John J. Cooper, who, as we before stated, has had many years experience as a practical miner and engineer, and whose ability and integrity in that capacity are vouched for by the eminent firm of Messrs. John Taylor and Sons, and whose family connections in this country are in themselves an absolute guarantee of good faith:—

I have made a thorough examination of the Isabelle Mines, and beg to hand you my report thereon. This property is situated in Scandinavian Canon, Silver Mountain Mining District, Alpine County, California, and comprises two main lodes—the Pine Tree and Adolphus, and four side lodes, which may be spurs of the Adolphus. The Pine Tree and Adolphus lodes bear a north easterly direction, and are parallel lodes to the Exchequer and I.X.L. The Pine Tree lode is about 1400 ft. to the south of the Exchequer, and 1130 ft. to the south of the I.X.L. At the commencement of the claims the Adolphus is only 50 ft. south of the Pine Tree, but they diverge from each other going easterly. The outcrops of the lodes are chiefly composed of quartz, bold, massive, and well defined, similar in character to the Exchequer and I.X.L., but at the same time are considerably more mineralised than either of the latter, frequently showing ruby silver.

The Pine Tree has a claim of 1750 ft., and the Adolphus 1000 ft. The outcroppings may be traced far beyond the claims, and in places rise up very abruptly for many feet above the surface. In other parts they are buried up with the slide or debris broken off from the surrounding mountains. An adit level has been driven on the Pine Tree lode from the commencement of the claim, a distance of over 100 ft., but being considerably caved I could not get in far, but I saw sufficient to expose a well defined and regular lode about 3 ft. wide, dipping east, and highly mineralised throughout. On the Adolphus there are several prospect shafts, varying from 10 to 15 ft. in depth; in all the lode is large and well defined, and the quartz has mineral disseminated throughout. It is very seldom you will find lodes on surface so thickly impregnated with mineral as is the case with the Pine Tree and Adolphus lodes, and it augurs that there must be large bodies of solid mineral below. It has been proved by their neighbour, the Exchequer, that the rich ore bodies in this district are not on surface, although the indications in this case are that they are not far off. Some few prospect shafts have been sunk on the side lodes, which I am of opinion will turn out to be spurs of the big mother lode Adolphus, they being a short distance to the south of it, and appear to be running towards it. Very little developments have been done in either the Pine Tree or Adolphus Mines, but what has been done promises well for their future prosperity.

I consider the Exchequer, I.X.L., Pine Tree, and Adolphus, the four lodes of the district, and I shall feel much disappointed if when they are properly developed they do not turn out immense riches. The situation of the mine is good, and easily accessible, being only 300 ft. from the Exchequer wagon-road, and almost a mile from Silver Mountain City. For the present developments of the lode I would recommend the adit level being continued on the course of the Pine Tree lode, which would gain depth every foot that it ran into the mountain, and the indications are such that you will strike a rich pocket of ore very soon in drifting. I would also advise the sinking of a main shaft a little above the mouth of the adit, between the Pine Tree and Adolphus lodes. The Adolphus lodes would probably dip into the shaft before it reached the required depth for drifting; in this case only one cross cut would be necessary to the Pine Tree lode. At the required depth levels should be driven on the Pine Tree and Adolphus lodes easterly, which would develope them at that depth. In case the ventilation should be deficient a winze might be sunk in the Pine Tree adit, at a point where the lode is productive, which would be all that is requisite. It is evident these lodes would not be expensive to develope, not nearly so much so as many others in the neighbourhood. The country rock is a fine grained porphyry, and not hard.

In conclusion, I must say I consider this will turn out a very valuable property, the mineral being continuous throughout the lodes on the surface indicates that it will be so in depth, but instead of its being scattered throughout the rock it will be found in solid masses.—JOHN J. COOPER, Superintendent, Coldstream Mine.

Among the many proofs that the Silver Mountain district had been long known to the Indians as a gold-producing region is the recent discovery of hollowed, basin-shaped stones in Indian Valley. The American Indians' method of smelting precious metals was one of the most remarkable devices of savage ingenuity. Having first hollowed out a flat stone in the form of a basin, they filled it with charcoal, and upon this laid the nugget of metal. A number of Indians next seated themselves in a circle around the basin, each having in his hand a long reed pierced through its entire centre, with a clay tube at one end. Everything being ready fire was applied to the charcoal, and the whole mass blown into a powerful heat through the reeds, the clay extremities of which were inserted in the basin, while the Indians blew through them upon the charcoal with all their might. No ordinary lump of gold could maintain its solidity in such a crucible. With this process the Indians could easily produce any variety of ornament from the precious metals, using them either alone or in alloy. This method was known to have been in use among the Indians who lived upon the gold-producing lands of North Carolina, and the same process must have been known to the Cherokees.

Last year the Comstock Mines produced $38,000,000, this year they will produce $35,000,000. Surely an investment that returns 50 per cent. a year is not a bad one! All the mining calls ever collected on the Pacific Coast were repaid by the production of the Comstock Mines last year. The leading Comstock Mines have paid in dividends above $90,000,000. Against this they have collected calls amounting in all to but little over $20,000,000. Compare this with the American railroads—during the last five years $1,000,000 of railroad stocks have been wiped out of existence; 200 companies have been defaulted, and been sold for their bonded debts in that time, and it is not likely that they are worth half of that. Now compare mining investments, as shown above, with the favourite investment in London—the bonds of Foreign Governments. Between 1851 and 1873 the British public paid 300,000,000*l.* for $3,300,000,000, worth (nominal) of these bonds. To-day they are worth but $300,000,000—a shrinkage of 90 per cent. This shrinkage is likely to prove in the main a dead loss.

As we pointed out last week, upon the authority of Prof. Raymond, of the United States Government, 20 companies, working in the aggregate 16,000 linear feet on the Comstock, in one year gave 400,000 tons of ore, yielding $21,000,000, equal to 4,200,000*l.* sterling. Each of these mines has an average of 800 linear feet of lode; at the same rate of ascertained productive value, if measured only by comparative extent of mineral ground, the Isabelle Mines, when developed sufficiently, ought to turn out 645 tons per day. As, however, the Comstock Lode is productive only about one-seventh part of its entire length the preceding figures should be reduced into the more credible totals of 92 tons per day, valued at 370,267*l.* per annum—the capital is 150,000*l.*!

It is only necessary to add that the mineralogical characteristics of the Comstock Lode, and of the ore taken from it, are almost identical with those of the Isabelle lodes, the distance between the two mines not exceeding 40 miles.

I.X.L. (Gold and Silver).—At the present interesting juncture in the career of this enterprise it may be of value to reiterate the fact that owing to the precipitous character of the mountains the declivities in many places are so steep that a depth beneath the croppings is attained equal to the length of the tunnel when it reaches the vein. All the veins are of good size, many very large, from 20 to 80 ft. thick on the surface, and occasionally much wider. The I.X.L. Mine is one mile lower down the canyon than the Exchequer, and is within two miles of the new mill. The outcroppings at surface are bold and regular, there is an ample supply of timber for all purposes surrounding the mines, and the buildings are in excellent condition. The shaft has been sunk to a depth of 200 ft., and a favourable contract has just been made to sink this main shaft another 200 ft. to the 400 level. The company has a convenient mill site, a well-built mill, and ample water power. "It is my firm and conscientious conviction (says the manager) not to be shaken by the scoffing and jeering of those unfortunates who have suffered by imprudent mining investments, and call all 'black' because theirs was black, undeterred by this, I say you have a first-class mine, and when fairly opened up will develope itself into a mine of the richest character. A mine that will reduce the present hazy reputation of American mining enterprise, return quickly all your outlay, and repay you ten thousand fold; and this is not my opinion only, but the opinion of every miner who has seen the mine. Further, to prove my sincerity and the indelible character of that opinion, I am willing (if need be) to superintend the work as it ought to be until I make the mine pay dividends, for my bare expenses; I make this offer because having recommended its purchase I am naturally anxious to prove the justness of my recommendation, and the accuracy of my opinion." Following this commendable example, the directors refuse to accept any remuneration other than from actual realised profits. True, they are noblemen and gentlemen of independent fortunes, and have a large stake in the company, so that their more important interest by far is the realisation of permanent dividends as soon as possible.

The latest official advices (dated March 25) state that the machinery was nearly completed, the engine in its place on a good foundation, and all would be ready for hoisting by the following Monday. The north drift was in 532 ft. from cross-cut, in the 200 ft. level, and the face in solid quartz 4 ft. thick—a well defined ledge; and, adds the underground agent, "if indications are not false it is within a near approach to a body of paying ore." The rise started from the north drift to connect with the O. K. shaft was up 166 ft., and nearly completed. Everything in and about the mine was running and working well.

EXCHEQUER (Gold and Silver).—Replying to repeated enquiries, we have again to state that the Exchequer Company own 7000 linear feet of lode, and a track of nearly two square miles of timber land, and at the mill abundance of water. The mill is thus described by the manager:—"There is not now in the mill one piece of the old Davidson machinery, but with the exception of a part of the pan and settler rooms, and the frame of the 8-stamp battery (also partially renewed), the whole mill is new from top to bottom. Like the Irishman's gun, it has got a new lock, stock, and barrel. I am prepared to prove that there is not, for its size, a better mill in California." We are often asked what is the character of the Exchequer ore, and, judging by the manner in which some of the enquiries are made, it would seem to be thought the ore is different from any other, simply because it requires roasting and chloridising, than which no greater mistake can possibly be made. The ore has silica mixed with magnesia, iron, antimony, and sulphur. Much of it has so strong a resemblance to actinolite (a greenish species of hornblende) that good judges would be puzzled to discern a difference. On the lower levels the ore is interspersed with quantities of beautiful ruby silver of the light-red kind, being a combination of silver, arsenic, and sulphur. Average samples, sent to a friend in Gold Hill, were assayed by Mr. C. James, the assayer of the Crown Point and Yellow Jacket Mines, gave the following results:—That taken from the 140 ft. level of the upper works gave $241 per ton, all silver; that of the 100 ft. level of the new shaft gave $1019·63, of which $30·13 was gold, and the balance silver. The samples from the 200 ft. level of the new shaft gave $852·49, of which $20·09 was gold, and the remainder silver. The ledge on the lower levels is from 4 to 15 ft. in thickness, and is all ore; both above and below it is separated from the country rock by heavy clay seams. It will be probably recollected that about 12 months since in a cross-cut drift of 23 ft., east of the regular lode, a 3-ft. ledge was struck of white quartz bearing free gold. The present indications would seem to favour the assumption that something further may be soon heard of "white quartz bearing free gold."

The Alpine Chronicle of March 24, says:—

"RUNNING FINELY.—The Exchequer mill and O'Hara furnace have been running all the week, and we believe very satisfactorily; the production of a few silver bricks will be a guarantee of the success of the enterprise."

The latest official advices (dated March 25) from the mine state that the 100 ft. level, No. 2 stope, had been driven 12 ft. during the week; vein 22 in. of No. 1 pay rock and 1 ft. mixed with good rock. The 200 ft. level, stope No. 1, had been driven 25 ft.; vein 2 ft. 9 in. of good rock. The 300 ft. level, stope No. 3, had been driven 13 ft., also timbering; vein 3 ft., with good rock. The 400 ft. level three shifts fixing track. The 200 ft. level had been communicateed with the 100 ft. level, improving the ventilation.

THE COMSTOCK MINES.—English shareholders will learn with satisfaction that—

It is now a well-established and thoroughly conceded fact that Consolidated Virginia will resume her $2 dividends in May. After that month, therefore, the two bonanza mines will disburse between them $2,160,000 monthly. Taking their recent prices, and striking an average between them, we may say that the stock of both has been selling at $12 each; the average has been lower, but those figures are sufficiently close. At $12 per share both mines represent an aggregate investment of $45,360,000, paying an interest of $2,160,000 per month, or $25,920,000 per annum, a proportion of exactly seven to four. In other words, an investment in the bonanza at $12 or thereabouts means the annual payment of $4 on every $7 invested. Is it any wonder that people confidently expect a booming market when Consolidated Virginia recommences her monthly payment of $2?

GENERAL MARKETS.—Peaceful or warlike rumours have continued the barometer influencing quotations. The sale of stock in London on behalf of French operators ran the exchange down, but there was a rebound. It is beginning to be felt that securities do not necessarily become valueless in consequence of war. Europe has endured many great conflicts since stocks were created, and yet the development of prosperity has never been more rapid than of late years.

ELECTRICITY, AND METALLURGICAL REDUCTION.

The employment of a magnetic coil or helix in connection with a cupola or blast-furnace, or other contrivance used for the reduction of ores or purification of metals, forms one of the features in the invention of Mr. A. T. HAY, of Burlington, Iowa, which also includes means of facilitating the purification of the resulting iron, and the conversion of it, or any part of it, into steel, and an improved flux for eliminating injurious foreign elements from iron and steel. In connection with the reduction of ores and purification of metals conductible wires are employed which, starting from one pole of a battery, are coiled around a furnace several times, and finally terminate at the other pole of the battery forming a closed circuit, and enclosing within the helix a portion of or the entire reduction chamber, so that any substance contained therein forms a magnetic core when the current of electricity is passed through the coils. The entire chamber may be enclosed in one coil or helix, or there may be three or more separate and distinct helices. Thus three wires may start from the zinc pole, the first coiling around the zone of fusion, the second the zone of carburation, and the third the zone of reduction, the wire in each coil terminating separately at the copper pole of the battery. Other coils still may be passed around other zones, as those of heating and combustion. These coils are all so arranged relatively that they may be united so as to form one coil, or two of them may be operated in one direction, while the current in the other or others may be reversed, or so that a portion of the chamber may be taken from the direct influence of a coil by detaching its wires from the poles.

There is no limit to the particular number of coils, nor to their relative arrangements, nor to uniformity of direction of the currents, nor to any arrangement of passing the coils around the outside of the furnaces, but must be understood as claiming broadly the use of a coil in such a manner in connection with any vessel for heating and reducing ores or minerals as to cause the substance acted upon to form all or a part of the magnetic core, and it matters not whether it be a crucible, retort, open hearth cupola, or other furnace where heat is used for the purpose of reduction, melting, or purification of ores or metals, the same natural laws being applicable in all cases. Heat promotes chemical affinity, chemical action sets free electricity, and electricity developes magnetism, and upon this latter phenomenon depends in a great measure the effects produced upon metals and minerals undergoing reduction or purification. By the use of this magnetic appliance reduction, fusion, or carburation is promoted, and metallic products (which are free from the usual impurities imparted from coal or contained in ores or metals) are produced, including grades of carburets of iron heretofore unknown, that are very valuable in the manufacture of wrought-iron and production of fine steel, as for instance, first by means of this magnetic appliance use may be made of from 25 to 50 per cent. of ore with pig metal or scrap, and produce a uniform casting directly from the cupola; secondly, iron ore may be mixed with pig or scrap in the proportion of one part pig to five of ore, and ranging to one of metal and three of ore, which when poured into the open moulds sponges up and purifies itself of all foreign matter except carbon, and a heavy product is the result (a silver-bright high carburet) that rings equal to the best bar cast-steel; thirdly, when clay and some other iron ores are used alone in connection with a small percentage of limestone, a light molten solution is obtained that crystallises into a dark brittle magnetic high carburet of iron that may be re-melted in a crucible or open hearth at a temperature below the welding heat of iron. These two latter products heretofore unknown are very valuable when used in connection with the manufacture of wrought-iron and steel; fourthly, pig and scrap metals rolled in flour of sulphur, including free sulphur mixed with the coal used under the influence of the above magnetic appliance in a cupola gives a uniform soft grey iron product. Any kind of electrical apparatus for generating electricity may be employed, as also any class of ores or combination of ores and metals, the great novelty in this part of the invention being the use of the coils when made to inclose the substance to be acted upon.

Referring to the second part of the invention—the purification of iron, manufacture of steel, and the carbonising of any particular part of a bar of metal, the inventor states that it has been found, first, that if there is placed in a crucible or closed retort, one part by weight of the heavy bright carburet of iron, three parts by weight of the dark high carburet, or in other proportions (both of which products he considers new and only obtainable by the process just described as the first part of his invention) in connection with a small percentage of the oxide of iron and free lime, a molten bath or solution is produced below the temperature that wrought-iron fuses that will convert any piece of iron immersed therein, when at a bright-red or white-heat into steel, while any portion of the said metal not immersed will remain iron. He explains that in an open hearth under a coal fire these carburet products when exposed to the blast intensify the heat, and give to iron heated therein steel properties; that iron immersed in a molten solution of the dark carburet becomes coated with a pure white iron, which renders it less liable to oxidise when exposed to air; and that on common steel and the dark carburet being fused together in a blacksmith's fire the iron takes on steel properties.

With regard to the flux to be used in reducing cast or crude iron for the manufacture of wrought iron or steel, and for working or welding the same composed of metallic iron, aluminium, oxygen, and silicon, with traces of carbon, sulphur, and phosphorus, which is produced in the manner hereinafter described, 50 parts by weight

of artificial peroxide of iron, of clay, or similarly constituted ores, 10 parts of silicates of alumina, such as clay, old fire bricks, to which may be added a small percentage of wood ashes with 30 parts of hard coke or carbon in any other form. This compound is subjected to the action of the furnace hereinbefore referred to until thoroughly melted and combined, or the compound may be melted and combined in any other convenient manner or apparatus to obtain a yellow molten fluid, which when properly cast in iron or other moulds and cooled forms a compound ready for use. The flux thus obtained may be applied in any ordinary manner to the reduction and purification of crude or cast-iron for the manufacture of wrought-iron and steel, and for the reduction, cleaning, and purification of copper and its compounds, and most of the metals and alloys used in the arts (as well as their ores), or to the working and welding of wrought-iron and steel generally. If the compounds are applied to the reduction of cast-iron for the manufacture of wrought-iron or steel, about 5 per cent. of the same are used with 1 per cent. of lime or limestone, both of which may be pulverised to any degree with the straight red short pig-iron, or other pig iron of a similar nature. These are placed in the ordinary charcoal bloom forge, or other reducing furnace, and worked in the manner well known to iron workers until it yields a metal capable of being rolled into bars or rods suitable for the finer grades of wire tinners' rivets, and the like.

When the compound is used for welding or working iron or steel, a pile or fagot of spring or plain steel is formed, and about 4 per cent. of the compound as a flux in a pulverised condition. The pile or fagot is heated in the ordinary manner until it arrives at a welding heat, when the mass can be rolled or otherwise worked into solid homogeneous bars or rods, which will be admirably adapted for the manufacture of wire and for other purposes, in which a low grade of steel is required. By the employment of the improved flux, old files and other high grades of steel can be worked or welded in the ordinary blacksmith's forge with common brassy coal when contaminated with free sulphur metallic paints, and other injurious impurities which have hitherto been impossible owing to the formation of sulphur compounds and deleterious metallic compounds which prevent a perfect weld. This compound will also, when used with melted cast-iron in the proportion of about 6 per cent. before or after pouring, clean it perfectly, and restore old burnt castings to tough grey iron.

IRON AND STEEL MANUFACTURE.

In connection with the working of the Bessemer process, a very simple invention has been suggested by Mr. T. A. FREESTON, of Attercliffe, Sheffield, with regard to the construction of the lower part of the converter. Hitherto the arrangement in the vessels for the introduction of streams of air into the same, as required, has consisted of fire-clay tuyeres of a nearly cylindrical form inserted in the lining of the lower part of the vessel, such tuyeres being slightly tapered at the lower end, in order to render them capable of resisting the pressure to which they are exposed. Now, Mr. Freeston's invention consists in dispensing with the use of such inserted tuyeres by forming in the lining of the vessel itself suitable perforations, through which the said streams of air are intended to be forced by the ordinary means. These perforations are formed in the "ganister" or other material of which the said lining is composed, by inserting therein tapered pins or plugs of metal, or wood, or other substance, and ramming the "ganister" or other material firmly round them. These pins or plugs are allowed to remain embedded in the "ganister" lining or lining of other material until it becomes thoroughly dried, either naturally by exposure to the atmosphere or artificially by being baked in a stove or otherwise, after which they are removed, leaving suitable perforations in the said lining. In order to secure the "ganister" lining or lining of other material to the bottom plate metallic studs are employed, of a conical or other suitable form, adapted for fastening the "ganister" lining or lining of other material and metal bottom plate together as required.

Another invention connected with the Bessemer process has been patented by Mr. HERMANN SCHIERLOH, of Jersey City, U.S., by which he is able to manufacture an excellent quality of steel from Bessemer metal, and provides a means whereby Bessemer scrap, such as old rails and the like, may be utilised in the production of a cheap steel, capable of use for many purposes for which steel has not ordinarily been used, as well as for many for which an expensive steel is required. In carrying out the invention he heats old Bessemer steel rails, or any other Bessemer steel, in a suitable furnace to a rolling heat; he then flattens by rollers, hammers, or other suitable means, cuts the flattened metal into sizes to suit the purpose for which the finished product is designed, and covers these pieces of the flattened steel with the welding compound, which he terms a cherry heat welding compound, and which was patented by him in 1874. After the steel has been thus flattened he cuts it into pieces of suitable sizes and proportions. He takes any desired number of the said pieces and covers or coats them with the welding compound. This compound may be applied to the pieces either by wetting the pieces with water, then dipping them into the compound in order to cause the latter to adhere, and then by a moderate blow or jar dislodging the surplus quantity of compound, but leaving a suitable coating upon the metal; or by simply sprinkling the compound in a dry condition upon the dry metal by means of a pouncing-box, a brush, or other suitable means or implement. The pieces being thus coated with the welding compound aforesaid are placed two or more pieces together in regular "piles," or in "box piles."

He prefers to bind the piles with wire to retain the pieces in proper contact and position with reference to each other during subsequent treatment. The piles formed of the pieces, arranged together as aforesaid, are then placed in a furnace and brought to a welding head. This done the piles, while at a welding heat as aforesaid, are placed under a hammer and welded, and condensed by the action of the latter. When the welded and condensed piles have become too cold for further hammering they are re-heated, and are then rolled or hammered to shape and size. Steel manufactured in this manner from Bessemer steel is very tough and strong; for example, a rod rolled hot to No. 4 size or gauge may when cool be drawn out without annealing into rods No. 14 gauge, thus displaying a degree of toughness and ductility greater than that of the best British iron. Moreover, steel made in this manner from Bessemer steel, when rolled or hammered to suitable sizes, affords excellent steel for general machine purposes, and also steel particularly adapted for railway tires and axles, inasmuch as it has a tensile strength (as ascertained from experiments privately made) of 146,000 lbs. per square inch. By thus producing at a cheap rate steel practically equal to cast-steel for many purposes, he enables manufacturers and others to use steel in the production of many articles for which steel has hitherto been inadmissible. Furthermore, steel made from Bessemer metal by this process can be welded as readily as wrought iron, and its employment may be thus adopted for many purposes for which, by reason of the difficulty of welding, steel has not hitherto been ordinarily used.

In order to facilitate the annealing, coating, welding, and case-hardening of iron and steel Mr. EDUARD BLASS, of Cleve, Prussia, proposes to employ a bath of molten salt, and he states that for the purpose of cleansing and brightening the surface of iron or steel in wire or other forms it is only necessary to pass it through a bath of molten salt, which has also the effect of annealing the metal without discolouring or scaling the surface, as in ordinary annealing processes. When the surface of the metal is rusty it should be left in the bath for some time, according to the extent or depth of the oxidation. It is also advantageous to mix borax with the salt. The metal cleansed in this manner is at once fitted to receive a coating of other metal, such as copper, zinc, tin, silver, nickel silver, or alloys thereof, fused either in a bath separate from the salt bath, or under the salt in the same bath with it, so that wire or other pieces of iron or steel can be passed through the fused salt and subsequently through the molten metal, so as to become coated therewith. For iron in the spongy or pulverulent condition, as it is produced by reduction of ore, the cleansing by means of the bath of fused salt is of great advantage in facilitating the union of the particles of metal by welding. In order to apply the salt bath to metal in this form the salt is melted in an ordinary or rotating puddling-furnace, and the iron sponge, mixed with a small quantity of quicklime or other suitable flux in the proper proportion, is added in such successive portions that the salt is not too much cooled by any one charge. The iron is left in the bath until the flux combining with the impurities of the sponge melts these out, whereupon the iron can be balled and taken out to be shingled or compressed. During this process the iron being completely covered by the salt is protected from oxidation, while the fluxes form a slag with the impurities of the sponge.

For case hardening iron the salt is melted in any suitable vessel, and the articles to be case hardened are immersed in this bath, and small quantities of dehydrated yellow prussiate of potass are added from time to time to the extent of 1 to 2 lbs. for every hundredweight of iron treated. The pieces to be hardened are retained in the bath from five minutes to half-an-hour, according to the thickness of skin to be hardened, and are then immersed in a bath consisting of water 100 parts, with about 1 part of hydrochloric acid, about 5 parts of common vinegar, and about 1 part of salt. If the articles are required to present a silvery surface they are afterwards immersed for a few minutes in a mixture of common vinegar and hydrochloric acid in about the proportion of 3 parts of the former to 1 part of the latter.

GEOLOGICAL SOCIETY OF LONDON.

April 11.—Prof. P. MARTIN DUNCAN, M.B., F.R.S. (President), in the chair.

John Robert Campbell, Union Club, Trafalgar-square, and Charing, Ashford, Kent; James Carter, F.R.C.S., Petty Cury, Cambridge; William Radcliffe Ellis, Civil and Mining Engineer, King-street, Wigan; William Hamilton Merritt, Lansdowne-road, Notting Hill, and of Toronto, Canada; William Morgans, Mining Engineer, of Chantry, Frome, Somerset, and the Guildhall, Bristol; and Edmund Albert Parsick, Civil Engineer, Indian Public Works Department, Serampore, Hoogly District, Bengal, were elected Fellows of the Society.——James Dorrington, Orphan Asylum, Wolverhampton; Rev. E. R. Lewis, Protestant Syrian College, Beerut, Syria; Edward Penton, jun., Charlotte-street, Fitzroy-square; Henry Rosales, Mining Engineer, Ballaarat, Victoria, Australia; and Henry White, F.S.A., Queen's Gate, Hyde Park, were proposed as Fellows of the Society.——S. Bewsher, St. Paul's School, London; H. G. Bolam, Little Ingestre, Stafford; Charles Thomas, Clarendon House, Buckhurst Hill, Essex; and John M'Kenzie Knight, Vestry Hall, Bancroft-road, Mile End, will be balloted for as Fellows of the Society.

The following communications were read:—1. "On Sandworn Stones from New Zealand," by Mr. John D. Enys, F.G.S.—2. "The Bone Caves of Creswell Crags." Third paper. By the Rev. J. Magens Mello, M.A., F.G.S.—3. "On the Mammal Fauna of the Caves of Creswell Crags," by Prof. W. Boyd Dawkins, M.A., F.R.S., F.G.S.

A NEW SYSTEM OF PAVEMENT.—At the meeting of the London Association of Foremen Engineers, on Saturday, Mr. Galloway read a paper "On Improved Roadways." He proposed to use hard wood as grown, cut into lengths, and laid down side by side, with the intermediate spaces filled up with any bituminous mixture. Such a road would be more firm and durable than the present soft wood. The hard wood as grown would contain the natural sap, and prevent the absorption of water. Mr. Galloway proposed to make the foundation by using plate, iron, or wood, of sufficient thickness to form the curvature of the road. He had also a plan for improving footways, which he urged would unite artistic beauty with durability. His plan was to cut strips of zinc, brass, or copper, and cement the strips in such forms as to make whatever configurations might be desired. The divisional spaces to be filled up with different colours by a pasty compound which would readily harden.—Mr. J. Newton (the President) remarked that for London the question of paving was the great question of the day. There was much difference of opinion on the subject, and anyone who suggested a new and improved method, which would be cheaper and more durable, and which would also tend to decrease the injuries to horses, received by their falling down in wet weather, was deserving of the gratitude of the London public.—A vote of thanks to Mr. Galloway was passed by the meeting.

ECHOES FROM THE MINING MARKET.

The delay in the expected proclamation of war between Russia and Turkey has given rise to innumerable rumours, and has checked the fall in the stock markets. Mining shares have, however, remained almost unaltered, although prices have been in many cases quite nominal, and there is a dull tendency throughout the various departments. This is more owing to the existing incertitude as to war than to anything else, as although the metal markets are not in a very strong position, a declaration of hostilities would cause a rapid demand to set in. For lead shares there has been the best enquiry. Foreign shares attract some attention, but tin, copper, and coal shares are almost neglected.

An improvement we hear has taken place in Derwent. The Sun vein has been cut, and has a promising appearance. Further details will probably transpire in a day or so. A leader of this vein was worth a ton of lead per fathom, so if indications count for anything it should be a rich one. At Assheton, a slight improvement has taken place in the 50 east. We understand there is a good course of silver-lead ore at Combmartin, in the end below the 28, worth ½ ton per fathom. Glenroy has also improved during the week. Leadhills have been in demand at 6 to 6½ ex. div. Rookhope continue firm at 18s. to 20s.; and West Tankerville, at 1⅝ to 1¾. At Van Consols, the 50 is expected to be reached early in May, when the lode will be cross-cut its full width: this will enable increased returns to be made. Glyns are dull at 1½ to 2; but Pateley Bridge have advanced to 3, buyers. A dividend of 4s. per share has just been declared in Minera.

Tin shares are easier, but, notwithstanding, business is most restricted. There is no news of any importance from Cornwall this week. Of copper shares, South Caradon has given a dividend of 2*l.* 10s. per share. During the quarter 8852*l.* has been expended, and 10,177*l.* received, showing a profit of 1324*l.*, which has made the credit balance 3504*l.* From this 1280*l.* is absorbed by the dividend, leaving 2224*l.* carried to the credit of the next quarter. The mine continues to look well, and, although the depressed state of the copper market has affected many mines, a good profit has been realised. In the West Caradon part of the sett the results have not answered expectations.

In foreign shares, Exchequer and I.X.L. have declined. These, however, show firmness at the reduced quotations. Javali have slightly improved. Scottish Australian have receded, and so have New Zealand Kapanga and Frontino. Eberhardt, Flagstaff, and Richmond exhibit a little change in price on the week. The two last named are firmer.

JAMES H. CROFTS.

THE WEEK.

SATURDAY, APRIL 14.—Lord Derby's statement that he despaired of peace threw the markets into utter confusion. Consols fell ⅞, and one of the Russian railway loans as much as 9 (Kursk-Charkow). The 1873 loan, that closed fairly firm: the previous evening at 78, opened straight off long before the official hour at 74, and after various fluctuations closed the same, thus showing how accurately its value for the day was gauged at the onset. The Bourse at Paris was deeply agitated, and they sold heavily from the beginning to the end, Egyptian stocks suffering severely in consequence. The 1873 loan gave way 2½ (46½ to 46¼), while the preference stock from being 58 fell at one time to 52¾, but closed 54⅛ to 54⅝. In Railways Caledonian was again forced down, receding 2⅝, to 116¼, while Great Eastern was nearly as flat, closing only 47¼, or 2¾ worse. Dover, A, gave way over 2, to 110¼. Metropolitan, 104¾ to 105; District, 42¾ to 43; Chatham Preference, 72½ to 72¾; Sheffield, 69⅝ to 69⅞; Brighton, A, 102¾ to 103.

MONDAY.—The markets were much quieter, the tone, however, remained flat, and lower quotations were reached in nearly every department. Almost the only exception was a nominal rise in the worthless bonds of Honduras, which were quoted 2, buyers, as against 2 sellers. Russian of 1873, after being dealt in at 72½, closed 73½ to 73¾, being but little worse than on Saturday. Egyptian issues, however, suffered, the 1873 loan fell 1¼, to 45, and the Unified ¾, to 32. This day week the former were dealt in at 50, while Russian were done at 83. The Danubian issues were nominally quoted 6*l.* lower, but the bonds are not much in the hands of the public, or they would not be so high. In railways, Great Eastern was the flattest market, closing 46½ to 46¾ after being lower. Caledonian, 115¾ to 116; Sheffield, 68⅝ to 68⅝; Midland, 125¾ to 126; Great Western, 100½ to 100¾. The Turkish General Debt closed again at 9, and the 1871 loan at 24.

TUESDAY.—The markets after being extremely flat rallied, and closed comparatively firm. There was first a pause, both here and at Paris, in the downward movement, a few purchases turned the scale, and when Russians were reported to be firm large quantities were bought by those fearing to be "cornered," causing the 1873 Loan, after touching 72½, to rebound to 14. The recovery took place rather late in the afternoon, just on the closing of the Official List, which, therefore, shows but little trace of the reaction. There was no rally, however, in Egyptian, the 1873 issue closing below 45. Central Illinois were done at 84¾, but at New York, where the shares are being "bulled," business was done at 85¼. Brighton, A, rose 10s., to 103⅝. Caledonian remained dull, same as yesterday (115¼ to 116), but fell at one period of the day to 114¼. This stock has now given way nearly 8*l.*, which would indicate that a large part of it is not in the hands of *bona fide* holders, but at the mercy of operators, who previously expected to sell to that section of speculators who are always fancying that a "bull" account in Scotch railways is the high road to wealth. Flagstaff, 2¼ to 2½; Eberhardt, 8¼ to 8⅝; Chicago, 4¼ to 4½; Great Laxey, 20½ to 21.

WEDNESDAY.—The Argentine Hard Dollar Bonds (1872 issue) gave way as much as 6*l.* (36 to 38), orders having been received here from Buenos Ayres to sell at best. For some time these bonds have been taken off our market and forwarded to Buenos Ayres, where the price was higher, but the dealers there appear to have got overloaded, and have been compelled to realise. Russian remained unchanged at 74 to 74¼, and Egyptian at 44½ to 44¾. In railways, district declined to 42⅝, and Great Eastern to 45⅞. Richmond, 6 to 6¼. Van Consols, 1¾ to 2.

THURSDAY.—There was considerable animation directly after the opening, when it was seen that Consols had risen to 95¼, 95⅜. Russian quickly touched 75¾, but gave way from this later in the day. Caledonian, as on Wednesday, was in demand on Scoth account, and recovered to 116½; the same influences at work raised British to 92. Great Eastern rose to 46½, and Great Western to 100¾. Mining shares were steady, without much being done. Aberdaunant, 12s. to 14s.; Van Consols, 1⅞ to 2⅛; I. X. L., ⅝ to ⅞; Wheal Crebor, 2 to 2½; Llanrwst, 2 to 2½; Rookhope, 18s. to 20s.

FRIDAY *(Opening)*.—The markets are very strong, owing to further large accounts open for a fall being closed. There does not appear to be much real buying. Consols are up to 95⅜, and Russian to 76. Turkish stocks are, however, dull; the General Debt is quoted 8⅝ to 8¾, Italian are 66 to 66¼, and French Fives 103¾ to 104¼. Aberdaunant shares 12s. to 14s.; Glyn, 1½ to 1¾; North Laxey, 15s. to 17s.; Rookhope, 18s. to 20s.; Van Consols, 1⅝ to 1⅞; West Tankerville, 1¾ to 1⅞; Don Pedro, 8s. to 10s.; I.X.L., 15s. to 20s.; Exchequer, 1⅝ to 1⅞; Eberhardt, 8 to 8¼; Flagstaff, 2½ to 2¾.——*Two o'Clock.*—Russians have given way to 75, and Consols are but 95 to 95¼ now. Midland, 126¼ to 126½; Birmingham, 146 to 146¼; Caledonian, 117 to 117¼; North British, 92¼ to 92½; Great Western, 101 to 101¼; Great Eastern, 47 to 47¼; Dover, A, 111¾ to 112.——*Four o'Clock.*—The markets are closing strong. Consols are very buoyant, and quoted 95⅜ to 95½; Russians are 75¼ to 75½; and Turkish Fives, 8⅞ to 9; North British have gone up to 92⅜ to 92½; and Great Eastern to 47¼ to 47½; the others show but little change. Richmond are 6, buyers.

FERDINAND R KIRK.

Birchin-lane, April 20.

MONYDD GORDDU LEAD MINE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Having yesterday visited your mine at Monydd Gorddu I cannot help writing to impress on your attention that you have in the 24 a most extraordinary discovery of lead ore. It is most valuable in itself, but it affords unmistakable evidence of still greater riches underneath, for the lode appears to be widening out in the height of the level. To be better understood I should say what has hitherto been the footwall now dips north, and the hanging-wall south; and as history describes the great mass of lead ore in the Havon to have been like this discovery. I am sanguine you are now on a gulf of lead ore. The masses of lead, although packed close, are unable to bear driving under them, for the interstices are filled up with very soft oxides of iron and copper quite black on both walls, but the gossan is full of fine crystals and threads of carbonate of lead, and all throughout small vughs coated with carbonate of lime. There is a splendid stream of water welling up on the sole of the level about 1 in. deep for the width of the level. It is a sight to charm a geologist and delight the heart of a miner, and is worth travelling a few hundred miles to see.

Aberystwith, April 18. JONATHAN PELL.

[For remainder of Original Correspondence see this day's Supplement.]

LEADHILLS MINES—MONTHLY REPORT.

April 19.—Brow Mine: Glengonar engine-shaft to sink below the 60 fm. level by six men, 13 fathoms certain, at 11*l.* 10s. per fathom. There is a very kindly lode here, and good results are expected in depth. The 60, south of shaft, by four men, at 5*l.* 10s. per fathom and 5s. per ton. Good looking lode, but at present without ore to value. Stope in back of the said level by four men, at 1*l.* 15s. per fathom and 10s. per ton; worth ½ ton per fathom. Stope in 48, south of Mars winze, south of shaft, by four men, at 25s. per fathom and 10s. per ton; worth 2 tons per fathom. The 40 to drive north of shaft, on Hopeful vein, by four men, at 4*l.* 5s. per fathom and 5s. per ton. We are driving here to catch the dip of the oreground seen in the upper levels, and which is likely to be met with soon. A pitch in back of the 30, south of shaft, by four men, at 4*l.* 10s. per ton; good paying ground. Stope in back of 24, north of shaft, by four men, at 4*l.* 10s. per fathom and 20s. per ton; worth ¾ ton per fathom. A cross cut west of Menzies' winze, below Gripp's level, north of shaft, by four men, at 9*l.* per fathom. Gripp's level is driven on Brow vein proper, and the 20 on a parallel lode, west of the above, to cut which the said cross cut is being driven. Gripp's adit to drive north of Muir's cross-cut, north of shaft, by four men, at 7*l.* 10s. per fathom and 5s. per ton; lode yielding stones of ore, and improving. Stope in said level, behind the end, by four men, at 65s. per fathom and 10s. per ton; worth 25 cwts. per fathom. Pitch in bottom of Gripp's, south of shaft, by two men, at 6*l.* per ton. Pitch in back of the said level south by six men, at 6*l.* per ton. Pitch in back of Pontshiel level, opposite the shaft, by four men, at 6*l.* per ton; tributers getting good wages.—Mupe Cross-cut: Gripp's adit to go west, towards Eastyvoyage and Westyvoyage veins, by four men, at 11*l.* per fathom.

Brown's Mine: The 55, north of Jeffrey's engine-shaft, on Brown's lode, by four men, at 9*l.* 10s. per fathom and 5s. per ton, worth 1 ton per fathom. The same level to drive south, by four men, at 9*l.* 15s. per fathom and 5s per ton—a kindly lode. There are three runs of ore ground known to exist south of the beforementioned end, the first being 4 to 5 fms. from shaft. The 41, north of shaft, by four men, at 8*l.* 15s. per fathom and 10s. per ton—a large fine-looking lode, worth 1 ton per fathom. The stope in said level, behind the above end, by four men, at 4*l.* per fathom and 10s. per ton, worth ½ ton per fathom. The 41 to drive, south of shaft, by four men, at 9*l.* 10s. per fathom and 5s. per ton—a strong hard lode, without ore to value. Cutting winze plat in the said level south, by two men, at 6*l.* per fathom. There is a good bunch of lead ore to sink on here. Stope in back of said level, by four men, at 2*l.* 10s. per fathom and 20s. per ton, worth 2 tons per fathom. No. 2 stope, south of the above, by four men, at 5*l.* 5s. per fathom, and 20s. per ton, lode worth 4 tons per fathom. Pitch in roof of 30, by two men, at 6*l.* per ton. Gripps' level to drive, south of shaft, by four men, at 9*l.* per fathom—a strong kindly lode.—Highwork, or Raik Mine: Gripps' level to drive, south of Jeffrey's cross-cut, by four men, at 5*l.* per fathom and 5s. per ton—a strong fine-looking lode, which is now beginning to show signs of productiveness. We all look upon this level going into the hill as a point of great interest to the company.

Old Raik Mine: Gripp's level going north of the above cross-cut, on Raik vein, by four men, at 7*l.* per fathom and 10s. per ton; lode worth 30 cwts. per fathom, and improving. The new shaft from surface to come down into the centre of the said old Raik Mine, to intersect the lode 15 fms. below Gripp's level (*i.e.*, 5 fms. below the old workings), by six men, at 4*l.* per fathom; shaft to be carried 9 ft. by 5 ft., within timber. Pitch in back of Gripp's level, north of Jeffry's cross cut, on said vein, by two men, at 6*l.* per ton. No. 2 pitch in ditto, by two men, at 5*l.* 10s. per ton.—Raik Vein: Reid's Shaft: Gripp's adit to drive south of shaft, by four men, at 6*l.* 10s. per fathom and 5s. per ton. There is now a fine lode in this end going towards Raik Mine, and a course of ore may be expected shortly. The 10 to drive south of No. 1 winze, by four men, at 4*l.* per fathom and 5s. per ton; not yet into the ore ground. The 10 driving north of No. 2 winze, by four men, at 6*l.* per fm. and 5s. per ton; lode worth 2 tons per fathom, and improving. There is a piece of rich ore ground in the back of the said 10 fm. level 63 fms. in length, varying from 2 to 6 and 10 tons per fm. No. 1 pitch in back of Gripp's, south of Reid's, by four men, at 6s. per ton; worth 14 tons per fm. No. 2 pitch, south of ditto, by four men, at 6s. per ton; worth 12 tons per fathom. No. 3 pitch, south of ditto, by four men, at 12s. 6d. per ton; worth 4 tons per fathom. The yield of the three pitches for March working—five weeks—is estimated at 220 tons.—Jeffry's Vein: Stope in back of Gripp's level, west of the junction of Raik vein, by two men, at 50s. per fathom and 10s. per ton; worth 30 cwts. per fathom. No. 2 stope, by two men, at 3*l.* 5s. per fathom and 10s. per ton; worth ½ ton per fathom.—Hill Side Shaft: Stope in back of Gripp's level, south of shaft, by four men, at 4*l.* per fm., and 20s. per ton; worth 30 cwts. per fathom. We have dressed in the same five weeks 389 tons lead ore.—A. WATERS.

TEESDALE.—The recent discovery at this mine is increasing in value and importance. The vein is of great strength and size, and well mixed with lead ore and mineral—so wide that it is probable there are two veins, and if so they are both of equal value at present. The eastern branch or vein is not being worked, the width being so great that it will form a distinct working as soon as room is made to place on more men. The other workings in the mine are somewhat better than they have been for some time past, Hopkins's level is also producing ore in a large vein, but the limestone is not all soundly on yet. This level will cut the first-named works 100 fms. north of the present forehead, and 5 fms. deeper. The necessary buddles and other machinery are preparing, to take the ores from a powerful crushing mill now at work, and the River Tees can be made available for water power if required, and at an easy cost.

WEST GODOLPHIN.—For some months past the bottom level's of this mine have been under water, and the operations in the richest portion of the lodes have consequently been suspended; a very serious loss has, therefore, been sustained by the company, as the tin sale was materially lessened last month, and that for the present month will in all probability be less than one half of the quantity sold two or three months since. It is, however, satisfactory to learn that the mine is now drained, and the sinking of the shaft below the 60 is resumed, on a lode worth for the length of the shaft 70*l.* per fathom, and that the tin sales will in future be equal to any made by the company at any previous time. In order to prevent the flooding of the mine again a more powerful pumping engine has been purchased, and it is intended, at a cost of about 2500*l.*, which amount has been provided by a call on the 5000*l* shares of 10s. per share, to erect this engine, and to provide larger pumps, which will be capable of raising four times the quantity of water that can be pumped to surface by the present engine and pitwork. This additional power is calculated not only to keep the mine dry to the present depth, but also to allow of its being sunk a very much greater depth, and thus avoid the necessity of a further outlay for pumping machinery for some years to come. The engine shaft is now down to within a few feet of the 70, which will be driven on a good course of tin, and act as a cross-cut to Wilson's lode, on the intersection of which the future of the mine must greatly depend.

MODYDD GORDDU.—They have cut into a mass of ore at the 24 which, not only from its richness but its extraordinary and rare character, I venture to predict will turn out to be the precursor of such a gulf full of riches as was found in the Havon and Henfwlch, situate on the same lode a few miles to the east; this great find is of such importance that it is fully expected in a very short time we shall see a revival of the good old times, and the whole valley teeming with mines and miners.

The creditors of the Bent Moor China Clay and Mica Works Company (Limited) are requested to send particulars of their claims to the liquidator by May 5; and those of the Birchgrove Graigola Collieries (Limited) by May 21.

THE

LANGNESS MINING COMPANY

(LIMITED).

To be registered under the Companies (Isle of Man) Act, 1865, whereby the liability of each shareholder is limited to the amount of his shares.

Capital £45,000, in 15,000 Shares of £3 each.

Deposit on application..... 10s. per share
ditto allotment ..... 20s. per share

The balance of 30s. per share will be called up if required at intervals of not less than three months, and in calls not exceeding 10s. per share; but it is probable that no call will be required after the payment of the allotment deposit.

One-half the purchase money for the property is payable in shares.

NO PROMOTION MONEY TO BE PAID.

PROVISIONAL DIRECTORS.

*THOMAS WRIGHT, Sunnyside Cottage, Douglas, Isle of Man.
*WILLIAM TODHUNTER, Derby-square, Douglas, Isle of Man.
*JOHN TAGGART, Malew-street, Castletown, Isle of Man.
*WILLIAM J. FELL, Princes-street, Douglas, Isle of Man.
*DAVID DUNCAN LEWIN, 134, Fenchurch-street, London, E.C.
*HENRY NICHOLLS Harris-terrace, Douglas, Isle of Man.

* These gentlemen are members of the Derbyhaven Trial Company, the vendors.

BANKERS.

BANK OF MONA, Douglas, Isle of Man, and Branches; and the CITY OF GLASGOW BANK, Glasgow.

AUDITOR—To be elected by the shareholders.

SECRETARY (pro tem)—M. PARKINSON.

TEMPORARY OFFICE.

46, ATHOL STREET, DOUGLAS, ISLE OF MAN.

PROSPECTUS.

This company has been formed to purchase and work the mines, veins, and beds of metal, and metallic ores and minerals within, under, and upon a certain portion of a tract of land situate in the parish of Malew, Isle of Man, belonging to a proprietary company called "The Derbyhaven Trial Company."

The said portion of land is about a mile in extent along the course of the main or Champion lode, and is part of the sett held by Messrs. William Todhunter, Thomas Wright, and William Fell, under lease from the Crown for 21 years from 5th April, 1876. It contains besides the said main lode a strong parallel lode, and both are intersected by numerous caunter lodes or cross courses, all more or less having outcrops of rich copper ore.

The main lode has an outcrop of ore 20 in. in thickness on the surface: the No. 2 parallel lode (which underlies towards the main lode, and the latter towards it, and both are expected to form one great lode in depth) has an outcrop of ore 10 inches thick, while the outcrops of the caunter, or cross veins, vary from 1½ in. to 5 in. in thickness.

Explorations were commenced on the property about three years ago by 16 persons, who formed themselves into the "Derbyhaven Trial Company," and so valuable were the surface discoveries stated to be by the practical mining men whose advice was sought, that the vendors were strongly urged to place the property at once upon the market. They elected, however, to spend their money in exploring their property until it gave indications in depth of becoming, with larger capital and more extensive operations, one of the most promising mines ever placed before the public.

In keeping with this common desire to prove the worth of the property before bringing it before the public, a trial shaft was commenced under the advice of Mr. Warington Smyth, Government Mining Engineer, and sunk by hand labour to a depth of about 13 fms. From this a cross-cut was driven to intersect the 10-in. and 20-in vein (as the two main parallel veins are called). In the course of this preliminary work, it became evident to the proprietors, and to the several mining agents who visited the property—for the mine had already gained a high reputation in the island, and attracted considerable attention from mining men—that the property would, when a moderate depth was attained, be a great and productive mine of high percentage ore.

By the advice of Mr Josiah H. Hitchins, the well-known mining engineer, and discoverer of the Devon Great Consols, a trial winze was sunk on the 20 in. vein, and the proprietors had the satisfaction of finding that the lode carried ore every inch in depth, in greater or less bodies (in many places as thick as 12 inches, and valued at 3 tons per fathom if driven upon). It was hoped that the junction of the two lodes would be reached in this winze; but, unfortunately for its further progress (although it is an excellent indication of the liveliness and openness of the lode), a heavy feed of vein water was struck, and the workings in depth had to be stopped in the absence of adequate machinery for getting out the water. As will be seen, however, upon reference to the statements of the well-known mining gentlemen whose reports accompany this prospectus, the proprietors have not spent their money in vain. They have upwards of 10 tons of high-class copper ore to show, after only the merest experimental driving upon the lode.

By means of these preliminary operations the strong probability of the mine proving remunerative when fully worked has been fairly established, and with an engine-shaft down (say) 40 to 50 fms., large and valuable returns are confidently looked for.

The following assays will serve to show the rare value of the ore. The first is from an analyst attached to one of the large chemical works at Widnes, and was obtained through Mr. J. T. Allen, of that place:—

COPY OF TEST NOTE.

Widnes, April 8, 1874.

DEAR SIR,—I have had the sample of ore which you sent me analysed. If this is a fair sample, you have found a very rich vein indeed, but I am afraid it is too good to be true. It tests:—

42·4 per cent. iron		32·0 per cent. sulphur	
24·5 „ copper		1·1 „ silicate	
		J. T. ALLEN, Widnes, Lancashire.	

The following are from Mr. Norman Tate, of Liverpool, the well known chemical analyst:—

Analytical Laboratory and School of Technical Chemistry,
7 and 9, Hackin's Hey, Liverpool, Aug. 12, 1875.

DEAR SIR,—I have not been able to complete analysis of minerals in time to write you fully to day, but am able to tell you that both samples contain over 20 per cent. of copper. They are, in fact, samples of copper ore in which the copper exists as sulphide. The mineral appears to be a mixture of sulphides of iron and copper, with quartz. I can scarcely tell you the value now, but if you can get hold of a Swansea sale list it will tell you the present price for such copper ore. I will see if I can learn the value between now and to morrow's post. Such ore is decidedly worth attention.

A. NORMAN TATE.

Analytical and Consulting Chemist, and Chemical Engineer.

P.S.—No. 1 contains 23·8 per cent. copper.

No. 2 „	21·5 „	„	

These are the results of wet assay. The dry assay would give somewhere about:—

No. 1—21·5 per cent.	No. 2—19·5 per cent.

Mr. James T. Allen. A. N. T.

A few days afterwards Mr. Norman Tate wrote as follows to Mr. Allen:—

Analytical Laboratory and School of Technical Chemistry,
7 and 9, Hackin's Hey, Liverpool, Aug. 20, 1875.

DEAR SIR,—In addition to the results I reported to you on the 12th inst., I have since determined the proportion of sulphur present in the samples you sent me:—

In No. 1 I find 33·8 per cent. of sulphur.
In No. 2 „ 31·0 „ „

The other constituents are iron and silica, with a very faint trace of arsenic, and also traces of silver. I do not know that I can add anything further. In a commercial point of view the mineral is simply a copper ore, containing on the average 20 per cent. of copper unmixed with any other metal that can add to or detract from the value of the ore as a copper ore. A. NORMAN TATE.

Jas. T. Allen, Esq.

Inspector's Office, Douglas, Isle of Man, March 21, 1877.

SIR,—The following is the result of examination of four samples of copper ore received by me from the Derbyhaven Mining Company for analysis:—

No. 1 contains 21·3	per cent. of copper.		
No. 2 „	24·2 „	„	
No. 3 „	23·9 „	„	
No. 4 „	22·4 „	„	

JOHN F. TERRY,
Government Inspector Adulteration Acts.

Mr. M. Parkinson.

The property is held under a lease from the Crown, dated June 1, 1876, for 21 years, at a very low nominal rent, and a royalty of one fourteenth for all ores of whatsoever kind, and the company have the right under the lease to work for minerals under Castletown Bay to a distance of about half a mile from low water. The importance of this concession will be seen when it is stated that the east and west veins have been traced across Castletown Bay, and it is a tradition of the neighbourhood that the Sandwich Boe and Boe Norris rocks, which are within the royalty, and are to be seen at low water spring tides, are full of ore.

Traces of ancient mining have been found on Langness, and at a place called "the Smelt House," on the road from Derbyhaven to Langness, what appear to be sandhills have been discovered to be heaps of scoriæ and refuse from old washing floors and reduction works. The dressing of the ores by the ancient miners in this place has been imperfect in character, as is shown by the large percentage of copper, lead, manganese, &c., still remaining in these heaps of refuse and scoriæ.

It is expected that the purchase of adequate machinery for developing the mine and for dressing purposes, will not absorb, with the purchase money, more than the amount paid up on application and allotment of shares. The property contains an excellent site for dressing-floors, which will be so situated as to admit, with only a moderate outlay, of the recurring tides being utilised for washing purposes.

Langness Mine is accessible by good roads communicating with Derbyhaven, Castletown, and the Railway Station at Ballasalla. It is bounded by Castletown Bay on the west, with easy access to the port of Castletown, and where the main operations are carried on is admirably adapted, and may be easily made available, for harbour purposes. At its northern end, however, it is provided with one of the best sheltered harbours in the United Kingdom—viz., Derbyhaven Harbour, into which large vessels frequently run for shelter in prevailing winds. Every facility is thus afforded for the cheap, speedy, and economic conveyance of ores and material to and from the mine.

So valuable are the discoveries made, and so promising does the property look as depth is attained, that nothing but the absolute necessity of raising capital to insure the development of the mine and the obtaining rich returns at an early date, has induced the vendors to place the property before the public.

The Memorandum of Agreement and plan of ground may be inspected, and the Articles of Association, with other information, obtained at the temporary offices of the company, 46, Athol street, Douglas, Isle of Man.

All persons desirous of becoming shareholders are particularly requested to visit the property and see for themselves the genuineness of the investment.

The vendors transfer the mine to this company for the sum of £10,000, of which one half is to be paid in shares. No promotion money is to be paid.

The contract contains a provision that the purchasers are to pay all the current expenses of the vendors in working the mine from Feb. 1, 1877.

Applications for shares may be made upon the form accompanying the prospectus, and sent, with a deposit of 10s. per share to the company's credit, to the Bank of Mona, Douglas, Isle of Man, or its Branches, to the City of Glasgow Bank, Glasgow; or to M. PARKINSON, at the temporary office of the company, 46, Athol-street, Douglas, Isle of Man.

Allotments of shares will be made according to priority of application.

REPORTS ON THE MINE.

Report by WALTER EDDY, Esq., and Captain WILLIAM KITTO.

To the Directors of the Derbyhaven Mining Company.

GENTLEMEN,—We made a careful examination of this mineral property, both at surface and underground, on the 7th ult., and annexed is our report thereon.

The sett is a very large one, being upwards of two miles in length by about one mile in width, and comprises within its area several powerful copper lodes.

It is situated on the south side of the island, on the eastern part of Castletown Bay, within one mile of the Douglas and Port Erin Railway Station, with facilities close at hand for shipping the ore and getting materials by sea.

The geological formation of the district is rather curious and interesting. It is composed of old red sandstone, conglomerate, mountain limestone, and clay-slate (or killas), the former being in this part a cover or cap upon the clay-slate (or killas) of about 10 yards in thickness, and through which run thin veins of trap rock.

The copper lodes cut through this conglomerate, cropping boldly out at surface, and are not displaced or disturbed by the trap dykes, the latter running nearly parallel with them.

The principal workings have been made on what, for distinction, we will call the main lode, which is from 3 ft. to 5 ft. wide. Several trial holes were first made on it at surface, in one of which a blast was put in the lode whilst we were there, and it displaced from 5 to 6 cwts. of good copper ore. There is of unusually good quality, producing from 20 to 25 per cent. of metallic copper.

A small shaft also has been sunk perpendicularly outside the lode to a depth of 24 yards, and a short cross cut put out from the bottom to intersect the lode, which it it did in the clay slate below the conglomerate. The lode was driven upon here for a few yards, and a sump put down in it to a depth of 24 yards. The stratum here is fine clay-slate, and the lode maintains its full width of from 3 feet to 5 feet, with very fine ore in it; and in our judgement it is altogether of a most promising character for proving highly productive in depth.

We consider that you are in possession of a very fine mineral property here, and that when the veins are prosecuted in depth you will have a good and profitable mine.

The sett is so large that it might with advantage be divided into two or three mines. Besides the promising nature of the present trials, we think that a large body of ore may be met with at the junction of the limestone with the clay slate, which is in close proximity to the present workings. The situation possesses great advantages for economical working, the strata and lode fairly easy to drive in, and railway and shipping communication near at hand. The lodes are not far separated from one another, and may be intersected with great advantage from the one now partially opened.

WALTER EDDY, Mineral Surveyor, Fron, Llangollen, N.W.
WILLIAM KITTO, Manager of the Foxdale Mines, Isle of Man.

March, 1877.

Mr. JOSIAH H. HITCHINS' REPORT.

In his report, referred to in the prospectus, Mr. Josiah H. Hitchins, the well-known mining engineer, says:—

"It is now a fortnight since I inspected this mining property; having over and over again carefully reviewed what came under my observation—in other words, brought sufficient consideration and reflection to bear on the various points of development entitled to weight in coming to as approximately correct a conclusion as is admitted by the nature of the circumstances involved—that is to say, according to my judgement. For this I have had ample time, which I invariably claim to be allowed in such cases, being always impressed with the serious responsibility attached to offering opinions for the guidance of others. It may be relied on that I shall bring no other than the most unprejudiced and independent judgment to bear on this mining property; speaking of it only in such a way as will be sanctioned by my conscientious conviction. No lengthened statements will be required of me to afford a sufficiently intelligible explanation of the state and prospects of this mine, the development of which, so far, either in depth or extent, can only be considered very limited; nor will what I have to say (suggestively) as regarding its due working necessitate any other than a few remarks."

Mr. Hitchins then proceeds at length to describe the geological conditions of Langness, and to advise the Derbyhaven Company as to the best mode of proving the value of the discoveries on the surface, and concludes his very exhaustive report as follows:—

"On consideration, again and again, of all the circumstances in connection with this property, I see no reason for wishing to retract my advice as to opening out the mine deeper, in the way explained—that is to say, by sinking a trial winze below the present bottom level, which, in my opinion, is fully justified, attaching due importance to the rich ore that the lode makes up to the very surface at many points, and seeing that at the present bottom level there is a lode producing good ore to commence with. What I have advised I would do myself if I had the mine, and the required money for it. Moreover, I cannot refrain from saying (taking all things fairly into account) that my opinion is that the probabilities preponderate in favour of the successful issue of this mine, in proof of which I take an interest therein."

CAPTAIN LLOYD'S REPORT.

Amongst others who have visited the property for inspection purposes was Capt. Edward Lloyd, manager of the Harlech Mines, North Wales, who in reporting upon Langness generally, and that portion of it to which some of the early explorations of the Derbyhaven Company were confined, says:—

I noticed at that part of the sett where operations have been commenced five different lodes traversing the sett within a space of less than 200 yards. Four of them are north and south parallel lodes, with an underlay worth from 18 in. to 24 in. to the fathom. The other is a cross-course running nearly east and west, so that it intersects the other four, and forms a junction with each of them, which is a very favourable indication, and will most likely add to the richness of the four parallel lodes. I myself picked up from the surface at a point where the cross lode forms a junction with one of the north and south parallel lodes a large stone of rich copper ore.

Now I must pen a few more remarks respecting the four lodes running parallel with each other, north and south, commencing with the western lode, which I will call No. 1. This is a strong well-defined lode, containing spar, gossan, clay, and strong ribs of fine copper ore. No. 2 lode is within 9 fms. of No. 1, and is a fine-looking lode; but I could not examine it as well as I would have wished owing to the tide at the time. To all appearance, however, it contains similar vein-stuff and matrix to the others. No. 3 is a fine looking strong lode, running within 10 fms. of No. 2 parallel. It contains similar matrix to No. 1, and very strong ribs of rich copper ore.

No. 4, or the most easterly, is a very strong, masterly, well-defined lode, about 7 ft. wide, carrying straight smooth walls or cheeks, and containing, besides very strong ribs of pure rich copper ore of several inches wide, gossan of a light brown colour, oxide and carbonate of iron, spar, and clay, all of which are more or less impregnated with copper ore. This must be a very valuable lode indeed, and I believe it will produce an immense wealth of ore when a proper depth is attained.

Taking into consideration the extent of the sett, the number and richness of the lodes, their proximity to one another, and the facilities offered for working them and shipping the ores, I have no doubt in my own mind that with a moderate capital judiciously expended the Langness Copper Mine cannot fail to be a great success.

Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—S. Toy, April 18: Setting Report: The men in the new shaft are making fair progress in cutting it down below the back of the deep adit level, also in cutting the new plat at the same time, for which I let them contract to complete last week. In the east part of the sett (Crowiwm) the men continue to drive towards the new lode by six men and one boy, at 10l. 5s. per fathom, for the month, or to cut the lode. The ground is hard for driving, with some water coming from the bottom of the level; we have met with another small branch this week, but we have not yet cut into the lode.

ASSHETON.—John Craze, Joel Manely, April 19: No particular change calling for remark in the 80, east of Boundary, since setting report. No lode has been taken down in the 60, east of Boundary, since setting report. The lode in the 50, east of Mawr, driving south on the north and south lode, has very materially improved since our last, and is now fully 4 ft. wide, and yields saving work for the dressing floors; we look forward for a further improvement. No material change in any other part of the mine.

BEDFORD UNITED.—R. Goldsworthy, W. Phillips, April 19: We have commenced taking down the lode at the engine-shaft and different levels, and will forward next week a full report of size and value, with the setting list. So far as can be seen the lode at the engine-shaft fully maintains its former size and value—a very fine lode.

BELSTONE.—James Neill, April 14: A Shaft: The 80 west on lode has been driven 4 ft.; total distance from cross cut south 6 fms. 2 ft. 6 in. Have gone through the cross-course, and find the strata in the western side composed of garnet, capel, hornstone, hornblende, and chlorite, the whole being thickly interspersed with mundic and yellow ore. The 80 cross-cut south from the eastern drift is driven 5 ft. 3 in.; total distance driven 2 fms. 1 ft. 9 in., the strata continue favourable for working, and very congenial for the production of ore, which is now being met with in saving quantities.—C Shaft: The stopes are still looking well, and yielding fair quantities of ore.

BODIDRIS.—H. Hotchkiss, April 17: Setting Report: The 60, to drive east upon main lode, by four men, to pay all cost, at 9l. 10s. per fathom; the end, although hard, is looking highly promising, and in about 2 fms. further driving we should meet with the first run of ore seen in the levels above. The cross cut to drive south, for Maes y Pwll lode, by four men, at 3l. 10s. per fathom; men to pay all cost. The workable ground in this level is now 6 ft. wide, and most satisfactory progress is being made in order to reach which, from the ground we are driving through, I have every reason to believe will be found rich in mineral. The 45, to drive east upon main lode, is re-let to four men, to pay cost, at 8l. 5s. per fathom. I am pleased to state this end is on the eve of an improvement. We blasted a hole in the footwall of the lode this morning, which broke some very nice lead, and the appearance is as if we are coming into another course of ore. The rise in back of this level, to communicate with the 30, is re-let at 8l. 5s. per fathom, men to pay all cost; this rise maintains its value for lead and blende, and will be the means of ventilating a most valuable section of stoping ground. The 30, to drive east upon main lode, by four men, at 7l. 15s. per fathom. There is no alteration to report in this drivage. The stope in back of the 30 is let to two men, at 6l. per fathom; lode 4 ft. wide, and producing lead ore as last reported.

CASHWELL.—J. Peart, April 14: The heading in Scar limestone in the south vein is not quite so wide at present, but contains about the same quantity of lead ore, and if we were a little higher up I expect it would open out, as we generally have the best vein near the top of the sill. The two headings in this vein, in very hazle, are both about the same; the east one is still broken and good to work, and some fine pieces of ore are met with. The third heading is worked up to the top of this sill, and we are now drawing out the work. The heading in the north vein, in the Scar limestone, is improving in width and more ore, and in a little time we may have a good mine at this point, as the Scar lime-tone has generally been the best stratum for raising ore. The heading in this vein, in slaty hazle, is about 3 ft. wide, of nice fluor spar, and well mixed with good pieces of ore. We have commenced to dress the ore, and hope there will be no more rough weather to stop us.

CATHEDRAL.—J. Michell, April 16: The men are making fair progress in cutting plat, barrow-road, &c., at the 52. There is no change in any of the ends worthy of remark since my last advice, excepting the 42 end west, where the lode is getting larger and wetter—an excellent sign for a productive lode.

CENTRAL VAN.—Henry Francis, April 19: The lode in the bottom of the winze sinking at the mouth of the deep adit cross-cut is precisely of the same character, and since my report of the 7th inst. has continued up to this time to produce solid crystallised prills of lead and smaller bits of ore, the latter in the greatest quantity. We are sinking as fast as we possibly can. The water in the bottom of the winze is still increasing—a favourable indication.

CLEMENTINA.—W. Bennetts, April 17: We have taken down a piece of the lode in the engine-shaft this morning, and I am glad to inform you that it is still holding good, and worth 1 ton of lead per fathom. The lode in the 25 end south is worth 15 cwts. of lead per fathom. We have not been enabled as yet to commence washing the lead, as it requires all the water for the wheel. I am now putting in a grate and slide to heighten the side of the water course that goes to the wheel, so that we may then convey the water from the dressing-floors to the wheel. This work I hope to accomplish in a few days, and shall then commence washing.

— Wm. Bennetts, April 20: Telegram: The lode in the engine shaft is worth 1½ ton per fathom. The 25 end is worth 1 ton per fathom.

COMBMARTIN.—C. H. Maunder, April 19: We are busily engaged clearing and securing the winze with the hope of reaching the 42. In the 31 the lode continues to yield fully ½ ton of rich quality silver lead per fathom. We are hoping to surface a good pile of ore from there to day.

CWM DWYFOR.—Joseph Jewell, April 19: I am still clearing away the water from the 10. Stewart's shaft is nearly clear of water. The lifts and machinery are working well. Some of the miners have arrived here.

CWM ELAN (NEW).—W. Goldsworthy, April 15: The ground in the engine-shaft is getting much easier for sinking, whereby the men are making good progress—about 4 ft. per week is being sunk. In the last 6 ft. which has been sunk the lode has been disordered by cross joints, and in the present bottom there is every appearance of the lode re-forming, and the country rock is more congenial for producing mineral. The lode at present is yielding good stones of lead and blende ores. The lode in the 30 west is looking much better than of late, and present indications convince me that we shall have an improvement shortly; present value of the lode here is 12 cwts. of lead and blende ores per fathom. The stopes throughout the mine are maintaining their usual value. There is no alteration in them to note since last reported on. Ore cleaned in the bin about 45 tons of blende and 8 tons of lead.

CWMYSTWITH.—April 18: In Michell's level west, on the new lode, the lode is small and poor, and in disordered ground. In Michell's level east, on the new lode, the lode is small, showing a little ore, but not sufficient to value. In the winze sinking under Michell's level west the part of the lode as being taken down is still poor. In Michell's level west, on the north lode, the lode is 3 ft. wide, showing nice spots of ore, good saving work, and kindly for an improvement. In Gill supper level east, on the new lode, the part of the lode is being carried in the level for a ft. wide, and is producing 10 cwts. of lead ore per fathom. In the rise in the back of the Rosa level, on new lode, the lode is still worth 10 cwts. of lead ore per fathom, and the ground favourable, but the pipe of ore is very short. Our stopes on an average are looking a little better than we have seen them lately. We have not cut anything of value west of the wide stope at Level Fawr as yet. The tribute pitches are turning out just as usual, and the dressing is being pushed on as fast as possible.

DE BROKE.—J. Phillips, April 18: Wilson's engine-shaft is 10 fms. below the 35, and I have set another fathom to sink before commencing to drive east and west on the lode, the nature of which in the present bottom of the shaft is of a most encouraging character for mineral. The ground in the 35, driving east of Wilson's shaft, is still hard, but changing as we go southward, and the lode is again producing fine stones of ore. The winze below the 25, west of junction, is down 4 fms.; the part of the lode carried is composed of killas, crystallis-d quartz, &c., and will produce about 15 cwts. of lead ore per athom. The stope in back of the 25, west of junction, is worth from 7l. to 8l. per fathom. The other stopes are quite as productive as hitherto. On Monday last samples of 20 tons of lead ore were sent out. Biddings due on the 24th inst.

DERESBY MOUNTAIN.—W. Bennetts, April 17: There is nothing new calling for remark since last report. I should like to put two men to drive the end a little level on the blende lode, as I believe there is a great chance of making good discoveries of lead in driving that level.

DENBIGHSHIRE CONSOLIDATED.—John Pryor, April 19: Although the 112 east is in a good mixture of stuff, I cannot report the improvement indications let me to expect at my last report; however, the end is now in similar ground passed in the shallow level, and I am led to look for early results. The ore being met with on the lode continues in the centre of the driving.—Parry's Workings, West: Now that the weather is finer and that our 112 west is under Parry's shaft, we intend starting on Monday to clear up the old level, and ascertain our where-about in the No. 2 rise, which we have so long been engaged in extending.—Cook's Fedw: We have about 7 yards to reach the 80 at that point. I can then carry measurements and dial the course of the lode, which will be a great feature for the future of the company.

DEVON GREAT CONSOLS.—April 20: There is nothing new in the report from the mines this week. Our sale of ore on Thursday (8·0 tons) realised 30l.

EAST DARREN.—April 17: The 130, west of Skinner's shaft, has been driven 2 fms. 2 ft.; the lode is about 1 yard wide, hard for exploring, and producing saving work for dressing of a low quality. The 130, east of Lewis's winze, has been driven 3½ fms. in a lode about 2 ft. wide; unproductive for lead ore. Present winze under the 116 was sunk during the past month 7 ft., and reached the required depth for the 130, which is extended west of winze 8 ft. In a lode 1 yard wide, yielding stones of lead ore occasionally, but of no value. The 80, west of cross-cut south, has been driven 1 fm. 4 ft. through a large lode, composed of light clay slate, carbonate of lime, and lead ore; yielding of the latter 1½ ton per fm. In the cross-cut south behind the present end we have commenced extending the same through the lode to reach the south wall, which is found most promising, and as far as driven into contains nice strings of lead ore; saving work for dressing. In the 92, west of cross cut north (150 fms. east of Taylor's shaft), the lode is 6 ft. wide, of a promising appearance, being composed of a blue clay-stone, carbonate of lime, and lead ore; yielding of the latter from 8 to 10 cwts. per fm. The tribute pitches are reduced from ten to seven in number, and without change. Our machinery is in good order, and hope to sample 4 tons of lead ore on May 1.

EAST VAN.—Capt. Williams, April 19: The only change to notice this week is the cross cut at the end of the 25 west: the lode here is intermixed throughout with lead, but not sufficient to value. This indication shows us we must go deeper, we have, therefore, resumed the sinking of Tempest shaft for the 40 fm. level below adit, which we hope to accomplish in three months.

GAWTON COPPER.—G. Rowe, G. Rowe, jun., April 14: The lode in the 132 east is 3 ft. wide, being chiefly composed of capel, spar, and mundic, with ore to the value of 3l. per fathom. The lode in the stopes below the 117 east has improved, worth 15l. per fathom. The lode in the 105 east is improving in character, producing good stones of ore. In the 105 cross cut we have intersected the south lode, which is laid open 18 in. (not through it), of a very promising character, being principally arsenical mundic, thickly impregnated with good quality copper ore; and, judging from its present appearance, we are inclined to think that there is a large lode existing in this direction, which will be proved in a few feet further driving. The lode in the 82 east is 4 ft. wide, of a very promising description, composed of spar, mundic, and good quality ore. The ground in the 82 cross-cut south is not quite so easy for progress, without any appearance of the south lode. The tribute department is without change.

GLASGOW CARADON CONSOLS.—Wm. Taylor, Wm. J. Taylor, April 16: New Shaft: There is no change of importance in the ground or lode, and good

progress was made with the sinking up to Friday, when we broke the sinking windlone: this has caused two or three days delay. We have now put down a larger lift which we had prepared for the purpose, and hope to get it all right for sinking again to-day. The 78 east is still looking well - a fine course of ore, worth 3 l. per fathom; the south branches, so far as seen, worth 15l. per fathom. In the middle level east in cutting in south we have met with a small branch, but from the appearance of the ground, we think there is more lode there. The winze from the bottom of this level, on north lode, is hoied to the 78; we shall now work this ground on tribute.—Arrol s Lode: In the 65 west is worth 8l. per fathom; ground a little harder.—Caunter Lode: The 65 west is worth 8l. per fathom; cross course in this end, which we hope will make a favourable change in the lode. The stopes and pitches throughout the mine continue to look well, and are turning out their usual quantity of ore.

GLENROY.—R. Rowe, April 20: The 60 south is still opening out wide, the lode containing blende, and more lead mixed throughout. No other change.

GLYN.—J. Roach, April 10: The usual progress is being made in sinking the engine-shaft. It is just possible that it will strike the footwall of the lode this week. The winze under the 28 west is in a promising lode, but no lead of importance yet. We have commenced dressing, and shall soon have a parcel ready for the market.

GORSEDD AND MERLLYN.—Wm. Edwards, April 19: I am happy to inform you that the mine is looking very well at all points. The driving from the shaft towards the first sump is improving, whilst the level going east from the other side of the pit is opening out satisfactorily. At the No. 2 or western sump the lode is yielding splendidly. We are busy preparing the third parcel of 50 tons for the May ticketing.

GREAT DYLIFFE.—E. Rogers, April 18: Nothing of importance to communicate. A setting report shall be sent next week. We are sampling to day 50 tons of lead ore, for sale on the 25th inst.

GREAT REFALLACK.—J. Harris, April 14: The men clearing out the 30 have not yet finished the job, having met with a great deal more trouble than was anticipated; there are two or three days' work more to do to complete in as far as required for the present, after which the men will resume driving the cross-cut.

KINGSTON DOWN CONSOLS.—James Richards, April 19: A portion of the lode in the shaft sinking below the 160 has during the past week been taken down, which proves to be worth for the length of the shaft 15l. per fathom, and is exceedingly promising. The favourable change in the ground also continues, and increased speed will now be made in reaching another level, and in following out the present improvement.—Bailey s Shaft: In the 160 west the lode is 4 ft. wide, worth 4 tons, or 1 l. per fathom. The 160, east of Nicholls's winze, is communicated with the 160 west of Rowe's winze, the lode at point of communication being worth 4 tons of ore, or 15l. per fathom. In the 150 west, on the south part of the lode, the lode is worth 3 tons of ore, or 10l. per fathom. The lode in the stope in back of the 150 west is worth 6 tons of ore, or 18l. per fathom. In the stope east of Clynoweth's rise, in back of the 140 west, the lode will produce 5 tons of ore, worth 20l. per fathom. In the 120 west, on the south part of the lode, the lode is worth 1 ton of ore, or 4l. per fathom. In the 110 west, on the south part of the lode, the lode is worth 2 tons of ore, or 8l. per fathom. The pitches are turning out their usual quantities of ore.

HOLMBUSH (Limited).—H. Bennett, April 19: The Holmbush lode, west of the engine shaft, is improving as we get away from the lead lode. I have to day broken some good stones of copper ore from this point. I shall put six men to drive west on this lode, and six men to drive south on the lead next Saturday, that being our setting day; and as we have got in the air-pipes, we shall be able to make good progress in driving. All our other points of operation are without any material change. Next Saturday being our monthly setting day, a full report shall follow.

MUSH ESTEDDFOD MINERA.—S. Michell, jun.: Since last meeting it has been thought advisable to suspend operations in the 20 yard level, in order to get the shaft sunk to a deeper level, and after the shaft is put down a little way to resume work here on tribute. The shaft has been set to a full pare of men, at 5l. per yard, and I am pleased to state that good progress has been made, 2½ yards having been sunk in the past week. The parcel of ore—6 tons 3 cwts., together with 12 cwts. of white ore—has been sold to Mr. John Hughes, of Mold, at 13l. 15s. per ton, and 4l. 17s. 6d. for white ore. I may add that the ore got in the past month, although only a small parcel, is very encouraging, and speaks well for the future, as it is quite clear that we have only to get down to a deeper level to give regular returns of lead ore.

KINGSTON CONSOLS.—J. Chynoweth, April 19: the shaftmen completed their contract casing and dividing the shaft at the 40, and will again commence driving the end west to-day. The lode is very large and masterly, and of a beautiful character, producing large spots of lead and blende, and issuing out a large stream of water. At the 30 good progress has been made driving west, and I hope in the course of a few days we shall communicate to No. 2 winze sinking below the 18. The lode is unproductive at this point, but of a very promising character. In the tribute pitches working in the back of the 30 the lode is worth ⅛ ton of blende and ¼ ton of lead per fathom. Good progress has been made driving the 18 west, where the lode is of a beautiful quality, 2 ft. wide; worth 2 tons of blende and 5 cwts. of lead per fathom, and very fair for progress. Driving south on the 18 (new lode) south 2 fms., the lode is worth ¼ ton of lead per fathom, and without blende. No. 1 stope in the back of the 18 yields ¾ ton of blende and ¼ ton of lead per fathom. No. 2 stope is worth 1½ ton of blende and ¾ ton of lead per fathom. No. 3 stope is worth ¾ ton of blende and ¼ ton of lead per fm. In No 4 stope the lode is worth ¼ ton of blende and 3 cwts. of lead per fathom. In No. 5 stope the lode is worth ½ tons of blende and 4 cwts. of lead per fathom. In No. 6 stope the lode is worth ¾ ton of blende and ¼ ton of lead per fathom. We sampled to day No. 1 lead, computed, 8 tons; No. 2 ditto, 5 tons; No. 1 blende, 21 tons; No. 2 ditto, 25 tons, to be sold on April 26. All the machinery giving good satisfaction.

LADYWELL.—Capt. Waters, April 19: No change to notice in the 32 south since my last report. We have resumed driving the 16 south to get forward into the ore ground now to be seen in the adit level. There is so much gas coming out of the lode in the said adit end just now that we cannot carry a candle into the forebreast. The pitch in the back of this level behind the end looking like yielding 20 tons of ore this month.

LLANRWST.—Robert Knapp, April 19: The portable engine I purchased and had for at Bolton is an excellent machine, and is in thorough condition. This is intended to work the jiggers, and the machinery for dressing the ore and sawing the timber, and is equal to all the purposes required. The carpenters are busily engaged in constructing the jiggers, &c., in order rapidly to bring about the completion of the dressing floors, and shortly we shall be presenting an imposing business aspect. The mine keeps its own, and is looking splendid throughout.

LOVELL (THE).—Joseph Prisk, Edward Kemphorne, April 18: The new shaft, sinking below the 20, is communicated to the 30, which has given good ventilation throughout the mine, and laid open a large amount of stoping ground. The 30 end east still goes on in a strong masterly lode, and is worth 18l. per fathom. This end has been driven through moderate tin ground for over 40 fms., and as we advance eastward towards the valley the quality improves. The stopes throughout the mine are looking much as usual, and things in general going on satisfactorily.

MARKE VALLEY.—William George, James Stenlake, April 19: The lode in the 60 west continues to yield about 2 tons of ore per fathom. No. 1 rise in the back of this level being the required height to form a 40 fm. level we have to-day set the men to drive west from the same, at 6l. per fathom, where the lode will yield 2 tons of ore per fathom. The lode in the 30 west has a very kindly appearance; still worth full ½ ton of ore per fathom. The 10 west continues to open out good tribute ground. Other points without change.

MEDLYN MOOR.—Joseph Prisk, Charles Rowe, April 18: At our setting, which took place on Saturday, the 14th inst, the following bargains were set: No. 2, North Lode: The 27 to drive east of shaft, by six men, at 6l. per fathom; lode disordered by a small cross-course for the present. This is only temporary, and we shall be looking forward to an improvement here in a few days. A cross-cut to drive north in the 27, by four men, at 6l. 10s.; we expect here to intersect a rich branch seen in the level above. A stope in the back of the 27, west of rise, by six men, at 2 . 15s. per fathom; lode worth 10l. per fathom. A stope in the back of the 17, by four men; lode worth 9l. per fathom; price for working 30s. per fathom. The 27 to drive east of shaft, by two men, at 8l. per fathom; lode 15 in. wide opening tribute ground. The 27, to drive west of engine shaft, by four men, at 5l 1 s. per fathom; lode 2 ft. wide, worth 8l. per fathom. A rise in the 27, west of shaft, by six men, at 4l. 10s. per fathom; lode worth 7l. per fm. The 17 to drive west of flat rod shaft, by six men, at 5l. 10s. per fathom; the last 8 or 10 fms. driving in this level has been through a valuable lode, but at present the end is disordered by a cross-course, which as a rule improves the lode when clear of its influence. Three pitches to eight men, at tributes from 12s. to 15s. in 1l. We hope shortly to be in a position to make good monthly returns.

MELLANEAR.—April 18: The lode in the 30 is producing occasional stones of copper ore, but not sufficient to value. We have commenced to sink a winze in bottom of the 50, very near the present end, to communicate with the rise in the back of the 67, on a lode 2 ft. wide, producing a little saving work for copper ore. The lode in the 61, west of the skip-shaft is looking quite as well as last reported, and worth fully 4 tons of ore per fathom. The lode in the rise in back of this level is worth 3 tons of ore per fathom. The rise in back of the 78, west of the skip shaft, is worth 4 tons of ore per fathom, with more lode standing in the south side. The lode in the winze in bottom of this level is worth 3 tons of ore per fathom; this winze is now down 5 fms. under the 78. We have cut a stream of water that has prevented the men from sinking. We have now put them to rise in back of the 86 to communicate with this winze, where the lode is also worth 3 tons of ore per fathom. The lode in the 86, west of shaft, is worth 3 tons of ore per fathom. The ground at Gundry's shaft is a little better, but still rather hard and spare for sinking. The lode in the 78, west of Gundry s shaft, is worth 2 tons per fathom, and looking a little more promising. The rise in back of this level is up 2 fms.; the lode is worth 4½ tons of ore per fathom. The lode in the 70, east of Gundry's shaft, is worth 3 tons of ore per fathom, and the western end is worth 2 tons of ore per fathom. The lode in the 60, east and west of shaft, is still worth in each end 3 tons of ore per fathom. Our copper ore divided out very well. We sampled yesterday (computed) 416 tons.

MONYDD GORDDU.—Richard Rowse, April 18: We are making fair progress through the course of lead at the 24. It is very satisfactory to be able to report a continuation of the same yield, with every prospect of a long run both east and west as well as in depth; the present value is 60l. per fathom. The 12 west on the main lode is very promising, yielding copper and spots of lead. This level will shortly reach the point where we are driving on a good lode at the adit; probably we shall meet the same run of ore when we arrive there. At this point over the adit we have worked away a profitable lode to surface, and we may look for the same result at the 12 shortly. The main lode in the adit west is worth 15l. per fathom, and promises improvement from a feeder of lead coming across to join the main part driving on. The south lode in the stope over the drift looks better; worth 14l. per fathom, with lode in the ends thereof of equal value. All is going well, excepting the water supply, which is fast falling off; but for this I should sample next week. I will do all possible to husband the water to keep the 24 going through the discovery.

NEW HENDRA.—R. King, April 16: The men have commenced driving this week in a straight course towards the old workings, previously referred to; this is considered by Capt. Rowe and myself the best course to take, as we found the new lode which we cut to be very changeable in its course, and running in such a direction as would lengthen the distance to the old workings. We have again set the end to the men to drive in a straight course at 5l. 10s. per fathom, and they are making good progress.

NEW SOUTH MERLLYN.—R. Rowlands, April 19: The rise in the 80 south is apparently about to enter another run of lead ore. In the north level I have no particular change to notice.

NEW TYLLWYD.—J. Paull, April 19: The lode in the 30, driving west of cross-cut, is fully 2 ft. wide, composed of clay-slate, spar, carbonate of lime, and lead ore, yielding of the latter some nice branches, and has improved since my last, and from present appearance likely to further improve. I hope soon to be able to say there is a good course of ore in this place. Water still issuing from the forebreast. The lode in the 2½, east of cross-cut on south lode, is much as last reported upon, being very large and orey throughout. Nothing new in the 20, middle lode, since my last. There is pretty good ore in the end of winze, and we are still squaring it down. The tributers have about four days drawing and clearing out their stuff from underground, and we are busily engaged in dressing what they have already out. All the machinery is in good order, and everything is being pushed on with the utmost vigour and dispatch.

NORTH LAXEY.—J. Bowden, April 17: Setting Report: The north engine-shaft to sink according to contract, by six miners and six labourers, at 30l. per fm. The 121 winze to sink by four miners and four labourers, at 11l. per fathom. The stope in roof of the 110 by one miner and one labourer, at 4l. per fathom. We have set a new stope in the roof of the 84, by two miners and two labourers, at 4l. per fathom. The 50 rise is poor, and we have put two men to clear the stuff.—South Ground: The stope in the sole of the 90 by two miners and two labourers, at 4l. per fathom. The 60 roof stope by four miners and four labourers, at 4l. per fathom. The 50 stope by three miners and three labourers, at 3l. 10s. per fathom. The 40 roof stope by three miners and three labourers, at 3l. 10s. per fathom. The north shaft is now sunk 4 fms. 4 ft. below the 136; the lode is 3 ft. wide, producing good stones of lead, which we have to pick out when drawing the stuff. The lode in the 121 winze is worth 15 cwts. of lead per fathom. The new stope in roof of the 84 is worth 10 cwts. of lead per fathom, and we expect it to be more productive, as it is in a good run of ground for lead. The stope in the sole of the 60 south is worth 15 cwts. of lead per fathom. The 60 roof stope is worth 1 ton per fathom. The 50 roof stope is worth 1 ton per fathom. The 40 roof stope is worth ½ ton per fathom. We sampled to-day 50 tons of lead ore.

OLD TREBURGETT.—W. Hancock, W. T. Bryant, April 18: In the 102 south the lode is about 5 ft. wide, producing silver-lead, blende, and copper—a very promising lode, worth about 5l. per fathom. In the 90 south the lode is large, and letting out a good deal of water, worth about 10l. per fathom. The stopes in the back of the 80 still look very well. No. 3 is worth about 60l. per fathom. At Masey's shaft sinking will commence below the 40 to-morrow. Messrs. Sheldon, Bush, and Co.'s parcel of ore is all delivered at Wadebridge to-day. The Treffry's Estate's parcel will be sent to Bodmin-road to-morrow.

PANDORA.—H. Nottingham, April 19: New Lode: The 33 fm. level, driving south, is still in close tight ground. The end is at present very wet, which is an indication that we are nearing more open ground. The cross-cut driving east, to cut Goddard's lode at the 33, is in rather better ground for driving, but still very hard. The 23 fm. level end south has not been driven any for the past week, as we were unable to get out the stuff. The end is now cleared, and will be resumed to-morrow. No. 2 stope, stripping and stoping behind the end, is yielding 15 cwts. of lead and 1 ton of blende per fathom; lode about 6 ft. wide.—No. 1 stope, over this level, is worth 15 cwts. of blende and 10 cwts. of lead per fathom. The 13 end, driving south, is very close, and unproductive. We may expect a change and an improvement here when the point is reached where the lode makes the bend on footwall lode, similar to what we see at and above the 23.—Goddard's Lode: Stope north of No. 3 winze, over the 23 south, is worth 15 cwts. of lead and the same of blende per fathom. Stope south of No. 3 winze is worth 15 cwts. of and 10 cwts. of blende per fathom. The 13 end, driving south, is still unproductive, the lode here being quite split up and disordered. No. 5 shaft, sinking below the 6 fm. level, is going down with fair speed. We have no lode at present in the bottom of the shaft. I am now inclined to think the lode will change its underlie from this, southwards. We shall prove this after reaching the 13 with the shaft.—Surface: We have completed the small reservoir for catching water for the use of dressing floors. This will supply us without taking water from the wheel. We have yet some work for these hands, levelling and filling up the other banks where they require raising. We are making better progress on dressing-floors, and shall sample a parcel of blende next Monday.

PARYS MOUNTAIN.—T. Michell, April 18: We have cut another small branch from 2 to 3 in. wide in the 95 cross-cut south, containing copper ore and sulphur; the ground is still hard. In opening out the lode in the 90, east of engine-shaft, we have good patches of copper ore, worth from 2 to 2½ tons per fathom. The various stoping points are yielding their usual quantities of ore, and some of the pitches are looking pretty well. We hope to have about 240 tons of copper ore to sample in the course of a few days.

PATELEY BRIDGE.—C. Williams, April 19: The Rake vein in the 30 east is 6 ft. in width, composed of gossan, quartz, barytes, carbonate of lead, and blue ore of pure quality. I have broken this morning fine blocks of rich ore from the bed, and, judging from the appearance of the vein and bed to-day, an early improvement may be expected. The ground at present is very easy to work, and good progress is being made. The same vein going west has a fine masterly appearance, being of very great width. The part we are carrying is 6 ft. wide, filled with carbonate of lead and gossan, with strings of ore varying in thickness from 1 to 2 in. thick, of pure metal, and I have every reason to believe that we are on the eve of making a very important discovery; the total length opened east and west upon this vein is 13 fathoms. The Lumb vein in south cross-cut in the 20 fathom level west is producing very good ore, in paying quantities, but, on account of the soft nature of the ground, our progress has been somewhat retarded. Now, however, the vein is becoming more compact, and the men are pushing ahead favourably. I hope soon to reach the south, or the more productive portion of the vein, when I shall be able to give you its full value. The metal bargain on new vein behind this cross cut is producing a fair quantity of ore, and the men are making fair wages at 60s. per bing of clean ore. Fielding's vein in the 20 west, over the north-west drivage, is from 2 to 3 ft. wide, yielding 1 ton of ore per fathom. The Sun vein going east, from bottom of new shaft under Gillfield level, is 5 ft. 6 in. wide, composed of quartz, barytes, and fine ribs of ore, and likely to further improve. The tributers on the top of the hill, in shallow adit, have made no discovery as yet, but the latter is very sanguine of cutting into something good shortly. Smelting ore is being proceeded with. Machinery in fair state of repair.

PATTER SYKE.—John Peart, April 14: During the last month we have been driving south in the Clargile Head vein, and often meet with nice pieces of ore, but it does not carry regular; we have a good vein and plenty of mineral, and not very hard to work, and from the appearance of this vein at the forehead we may soon get into something very good. I think in a little time—in fact, from the change already in the forehead—we shall very soon intersect some of the east and west veins, which will be very likely to make ore in one or both of the veins. In driving this level south the beds are rising very fast, and are getting the level below the scar limestone, but will make rises occasionally and prove the vein in the lime stone above. If this vein continues to improve as it has done the last 6 or 8 ft. we may soon have a change for the better.

PEDN AN-DREA CONSOLIDATED.—W. Tregay, Wm. Prideaux, John Pope, April 18: Sump: In the 140 east winze the lode here (Martin's) is worth 35l. per fathom. In the 130 west end the lode here (Martin's) is worth 20l. per fathom.—Cardozo's: In the 100 west end the lode here (north) has improved, and is now worth 25l. per fathom. In the 90 west end the lode here (north) is worth 10l. per fathom. In the 90 west rise the lode here (north) is worth 70l. per fathom. In the 80 west end the lode here (north) is worth 10l. per fathom. In the 60 west end the lode here (north) is worth 12l. per fathom. In the 55 west end the lode here (north) is worth 20l. per fathom. In the 55 west rise the lode here (north) is worth 12l. per fathom. We sold on Wednesday, 11th inst., at Trethellan, 8 tons 4 cwts. 3 qrs 23 lbs. of black tin, at 43l. 10s. per ton = 358l. 15s 6d. We sold on Thursday, 12th inst., at Carvedras, 7 tons 11 cwts. 1 qr. 27 lbs. of black tin, at 43l. 10s. per ton = 329l. 9s. 10s. No other changes to report.

PENNANT.—April 19: In the 80 yard level east the lode is of a most promising character, and as we are entering a good channel of ground further favourable results may be reasonably looked for. We have taken down the lode in the 60 east, which is producing good lead ore. The stope at this point is in whole ground to the 40. The rise in the 60 west is improving. We have a good lode in back of the 40 east. Dressing operations in good progress.

PENNERLEY.—W. T. Harris, J. Delbridge, April 18: The only change calling for remark is in the 80 west, on Warm Water lode, where the lode is now worth 3½ tons per fathom; this looks well for the cross cut in the 120, where indications are most encouraging, branches of carbonate of lime are being met with, and a little water issues from the forebreast. All other points are yielding lead ore in value as last reported. Full particulars shall be sent you next week.

PLYNLIMMON.—John Garland, April 19: Friday last being the setting-day the following bargains were set for two months:—Jones's winze to sink below the 24, by nine men, at 15l. per fathom; in this winze the lode, although wet and troublesome, is large, open, and kindly, and has during the past two days produced some very good stones of lead ore. This winze has struck lead rather sooner than I expected, and it looks well towards the verification of my expectations at the next level. Herbert's winze to sink below the 25 has been set to six men, at 12l. per fathom; the lode here is also large and promising, producing 1 ton of lead ore per fathom. These winzes are each down 3½ fms. A stope in the back of the 24, about 2 fms. east of new winze, has been let to six men, at 5l. per fathom; the lode produces about ½ ton of lead ore per fathom. A stope east of last-named will be set in a few days, when the lode will produce 15 cwts. of lead ore per fm. A stope in the bottom of the 12 has also been set to six men, at 4l. 10s. per fathom. Here the lode also produces 1 ton of lead ore per fathom. All well I hope to set the new shaft next week. Drawing and dressing progressing as usual. The mine is in fork, and all machinery throughout in fair working order.

PRINCE OF WALES.—J. Andrews, April 18: In the 77 west we are driving by the side of the lode. In the 55 west we have driven through the cross course, but the lode is still unsettled; at the present time it yields a little ore, but not to value. The lode in the stope in the back of the 55 is from 2 to 3 ft. wide, worth 10l. per fathom.

RELISTIAN CONSOLS.—J. Curtis, April 19: In the 10 fm. level we are stripping down the lode standing on the south side, and find it yields an average of about 40 lbs. of tin per ton of stuff. We have taken down a piece about 5 fathoms in length. In the 24 we have stones of tin and mundic; this end is under the tin ground passed through in the level above, and we hope shortly to be in the same productive lode. The other points in operation are without change since my last.

ROMAN GRAVELS.—Capt. Waters, April 19: There is no material change in the value of any point in the mine since the date of last week's setting report. We have cut a considerable feed of water in the bottom of the new south engine-shaft, which is a great drawback to us at present. The cross branch which lets in the water is likely to influence the Roman lode for the better. We have to-day sold 220 tons of lead ore, realising 301l.

SAINT PATRICK.—William Francis, April 18; I am pleased to be able to say the cross course in the 120 yard level, north from engine shaft, has been continually widening since my last report, and is now 3 ft. wide, with clays of various kinds (chiefly red), and boulders coated with trilly-stone and other congenial matter. The chert cross cut also progresses well, and the general features are most encouraging.

SHELFIELD.—John W. Powning, April 19: We have crossed a course of spar 18 in. wide in the 45 cross-cut driving north; this is in close proximity to the main lode, which I hope to reach in the course of next week. I am pleased to say the water is gradually falling off, and is now being kept at eight strokes per minute.

SOUTH CONDURROW.—Wm. Rich, Wm. Williams, H. Abraham, April 18: We are forcing on the sinking of the Plantation shaft as fast as possible, and pushing out the 10 cross cut from this shaft to intersect the north branch; this branch passed through the shaft just below the adit, where it carried good limestone. The 40 east, on the great tin lode, is improving, now worth 8l. per fathom. The rise in the back of the 50 east, some 20 fms. ahead of the 40 end, is worth 12l. per fathom. The 50 end, east of the rise referred to, is worth 20l. per fathom; this is an important feature in the mine, as we have hundreds of fathoms of unexplored ground before us in this direction. We might say that owing to the rapid underlie of the great lode there are over 100 fms. of backs above the 50 to operate on. The 50, west of western cross-cut, is worth 9l. per fathom. The lode in the 60 west is shifted by a perpendicular branch. We are driving a cross cut south to reach the lode. The rise in the back of the 60 west is worth 10l. per fathom. The sink in the bottom of the 60 is worth 18l. per fathom. The 70 west, going towards the Plantation shaft, is worth 8l. per fathom. The rise in the back of the 70 is worth 12l. per fathom. The ground in the 80 east is looking more promising for tin. The winze in the bottom of the 82 west is worth 6l. per fathom. The stopes are in full course of operation at the 93, after being idle for over three months on account of the water. We have, however, fully kept up the sale of tin, independently of the bottom level. We shall shortly begin to put in a dam to stop back the East Grenville water; after this is accomplished we need not fear the mine being again flooded.

SOUTH DARREN.—H. James, A. Gundry, April 17: We have met with a cross-head in the 90 end, which has made the lode comparatively valueless. The stope in the 90 has improved since last reported on; present value, 20l. per fathom. In the stope in roof of the 70 there is no change worthy of note. The jiggers were tried on Saturday, and work well. We shall commence crushing and dressing to-morrow. The old buddles are undergoing repairs, so as to be ready for work as soon as possible. There was very boisterous weather here last night, which caused severe damage to the launders connected with pumping-wheel. This has necessitated our stopping the wheel for about twelve hours. Looking at the very bad state it is in, it is highly necessary that the pumping-engine be erected as soon as possible.

SOUTH TOLCARNE.—Wm. Rich, Wm. Hambly, April 17: Owing to the floods of rain during the last few days we have been obliged to suspend operations in the trial shaft, on the South Condurrow lode. We hope, however, to resume operations in a day or two. The lode in the 50 east is of good size, and carries a little tin. We have set men to rise in the back of the 50 to prove the lode and for ventilation. We are fixing rods from the pumping-engine to gossan shaft.

TANKERVILLE.—Arthur Waters, April 19: Watson's shaft is 9 fms. below the 180, the ground in present bottom being more wet than usual. The 180 east continues to go into a strong wide lode, worth 3 tons per fathom. The 180 west is also in a strong wide lode, worth 3 tons per fathom, and looks like improving shortly. The length of ore ground now opened in the said 180 is 24½ fms. No. 1 stope in the above, east of shaft, is worth 3½ tons per fathom. The stope west of No. 1 winze is worth 3 tons per fathom. The 167 east is not driven far enough to reach the ore seen in the level below. The same remark applies to the 167 west of shaft. All other points as for some time past. We have to day sold 100 tons of lead ore for 1332l. 10s.

TREBEIGH CONSOLS.—John Gifford, April 18: The distance driven in the 20 fm. cross-cut is 5 fms. 3 ft. We commenced sinking the engine-shaft on Monday last, when we set it to sink, by nine men, stent 3 fms., at 15l. per fm.; also set the cross-cut to drive, by six men, stent 4 fms., at 5l. 5s. per fm. No other change to report on. We hope to see something more of the branches in the latter part of the week, when I will advise you.

TRELEIGH WOOD.—E. Hosking, W. Goldsworthy, April 19: The lode in the 56, west of engine-shaft, is worth 10l. per fathom. The end is letting out water freely, and almost drained the pitch in the bottom of the 44. We hope soon to be able to work this ground dry, which will be a great advantage to us, and will enable us to get more stuff. The lode in the 56, east of the engine-shaft, is improving, and yielding stamping work. The lode in the 34, east of the cross-course, is worth for the part carried (5 ft.) 5l. per fathom. The tribute pitches are looking much the same as when last reported.

VALE OF CONWAY.—John Roberts: East and West Lode: We are driving on this lode by a full pare of men, at 4l. 10s. per fathom. There seems to be a poor neck in the lode at present. In the bottom of the end the lode is worth ½ ton of lead per fathom. Rabbit lode is driving by four men, at 4l. per fathom; the lode is worth from 10 to 15 cwts. of lead per fathom. This end will open through the course of lead intersected by the cross-cuts along the side of the mountain.—Surface: We have commenced putting down the rails from the adit, on the east and west lode, and shall finish them shortly.

VAN CONSOLS.—J. Roach, April 16: Murray's shaftmen are making excellent progress in sinking. We shall soon be down to a 50 fm. level, when we shall immediately drive a cross cut through the lode, and ascertain its value. To-morrow morning we shall commence sinking the winze under the 40, west of Murray's; I believe it will go down in a good course of lead; all indications are in favour of it. The stope west of winze above the 40 is not quite as good as when reported last. The 40, east of Gundry's, is without alteration since last reported.

VAUGHAN.—April 17: The deep adit level east has been driven 6 ft., and the lode stripped down for 2½ fms., which is chiefly composed of a blue clay-slate and carbonate of lime, containing a little copper and lead ores; it is now set to six men to drive, for two months, at 10l. per fathom. In the engine-shaft we have completed taking down the north part of the lode, which was hard for exploring, being composed of clay-slate, carbonate of lime and grit, containing a mixture of lead and blende, but not sufficient to set a value on. The 32 east has been driven 1 fm. 3 ft. 9 in. on the north part of the lode, which has fallen off greatly in value, being disordered by cross-joints, now yielding little lead and blende, but we look forward to an improvement again shortly; now set to six men to drive, for two months, at 9l. per fathom. The winze sinking under the 20 is now down 2 fms., but as yet we have not taken the north part of the lode; as far as seen it will yield 1 ton of lead ore per fathom; it is set to six men to sink, for two months, at 9l. per fathom. The weather at present is very stormy; when it abates we shall commence to put things in repair at surface.

WEST ASSHETON.—John Craze, Joel Manley, April 19: The shaftmen are pushing on with the preparations for sinking Boundary shaft with the utmost dispatch. The lode in the 60, west of Boundary, presents a very kindly appearance, and produces nice stones of lead and copper ores. No lode has been taken down in the stope in back of this level during the week. The lode in the tribute pitch in back of the 50, west of Boundary, has greatly improved since sought. The tributers in back of 40, west of Boundary, are making fair wages. No other change calling for remark.

WEST CRAVEN MOOR.—David Williams, April 18: We have commenced sinking the new shaft from surface to Blackhill level. The lode in the end to-day is worth fully 2 tons of lead ore per fathom. We have also commenced sinking west shaft below the 20. The 20, east of new east shaft, upon No. 2 vein, is worth 30 cwts. of ore per fathom. I have sent altogether 32 tons, or eight bings, of lead ore to the smelt mill, which will be smelted on Monday next.

WEST GODOLPHIN.—Wm. Toll Pope, April 18: I am pleased to inform you that the mine is again in fork, and the sinking of engine shaft resumed. A full report will be forwarded in time for the committee meeting.

WEST MARIA AND FORTESCUE CONSOLS.—W. Skewis, April 18: North Lode: The lode in the 71, east of Willesford's shaft, is 2 ft. wide, producing a little copper and mundic. No change in the lode in the western end this week. The stopes in the bottom and back of this level are worth respectively 15l. and 18l. per fathom.

WEST PATELEY.—D. Williams, April 19: The Craven cross vein in the 56 has this week improved, and is producing good stones of lead ore. The ground is easier to work, and good progress is being made. I have resumed sinking No. 1 shaft; the vein the bottom is composed of limespar, gossan, and a small branch of solid ore. Other points without any change to notice this week.

WEST TANKERVILLE.—Arthur Waters, April 19: South boundary shaft is 9 fms. 4 ft. below the the 75, and the sinking goes on regularly. The 75 end south is very wet, but the lode is unproductive at present; this end is now within 2 fms. of the winze from the 63. The stope in the 75 south is worth ½ ton per fathom. No. 2 winze below the 63 is worth ½ ton per fathom. The 63 south has fallen off lately, present yield being ¼ ton per fathom. No. 1 stope in the back of the said level south is worth 25 cwts. per fathom. No. 2 stope is worth 15 cwts. per fm. No. 1 stope in the back of the 50 south is worth 25 cwts. per fathom. No. 2 stope is exhausted, all the ground being taken away. The stope in the 50 north is worth for lead and blende 10l. per fathom.

WEST TRESAVEAN.—G. Stephens, April 18: The new lode where we found the great improvement has further increased in value in the stope, and in extending eastward is very rich; the lode has all the appearance of a lasting and profitable deposit of ore. The surveyor is coming here to morrow, and will make a plan of this discovery and other new points.

WEST WHEAL TOLGUS.—April 18: In Taylor's shaft the ground is much the same as last reported. We think we may safely reckon on having ore in the next level; there was some good ore broken from the lode in cutting a hitch for timber last night. The lode in the 135 end west has improved a little since my last, now yielding 7 tons of ore per fathom. The lode has also improved in the 135 end east, now yielding 1½ ton of ore per fathom. The stopes in this level are looking very well, quite up to former reports. The lode in No. 4 winze, below the 125, continues to yield 8 tons of good ore per fathom; we shall not sink this winze much deeper as it is getting deep to draw the ore from it. We shall not be long before the 135 end gets under it, when a rise can be put through at a less cost. The lode in the rise in the back of the 125 is yielding a little ore. The stope in the back of the 115, west of shaft, and east of Michell's rise, continues to yield 3 tons of ore per fathom. At Richard's shaft the shaftmen will be employed all the month about cutting plat and timbering the shaft, as noticed last week. The stope in the back of the 85 fm. level, west of shaft, is not quite so good as it has been, yielding 2 tons of ore per fathom. The lode in the 75 west is small and poor, and the ground disordered; the same may be said of the 65 fm. level. We sampled 250 tons of ore yesterday, of about the same quality as at the last corresponding sampling.

WHEAL CREBOR.—J. Andrews, April 17: In the 120 east we are still driving by the side of the lode, and shall continue to do so until it is holed to the winze. The part of the lode we are driving on in the 108 east is 2 ft. wide, worth 5l. per fathom. The lode in the stope in the back of the 108 fm. level is 5 ft. wide, worth 20l. per fathom. The winze sinking below the 108 is now down 12 fms. 1 ft. below the level, which I consider is deep enough for the back of the 12. I have, therefore, put the men to drive west at the bottom of the winze, so as to effect a communication with the 120 as soon as possible, which I hope will be done in a few days. The part of the lode we are carrying in the 72 east yields a little more mundic, which is the only change. In the 48 east we have cut through the lode, which is full 8 ft. wide, and 2 ft. of the north part of which is worth 9l. per fm, and taking the lode for the whole width (8 feet) a more promising lode can scarcely be seen without a course of ore. The lode in the stope in the bottom of the 48 is 4 ft. wide, worth 10l. per fathom.

WHEAL CREBOR.—J. Andrews, April 19: I am glad to say that last evening we holed the winze sinking below the 108 to the 120 end, which has given good ventilation to both levels. There is no change in the 108 east since yesterday; the north part of the lode is yielding some good quality ore, and looking very promising, but there will be no further change for a few days, as we shall be driving by the side of the lode. We have done nothing to the orey part of the lode in the 48 since my last report.

WHEAL GRENVILLE.—T. Hodge, April 18: The 150 east end is worth 10l. per fathom; the men are working very well, and making good progress. The 130 east end is worth 9l. per fathom. The 130 west end is worth 7l. per fathom. The six stopes at work are without any particular change worthy of notice; may be valued in the aggregate at 50l. per fathom. The north shaft is nearly completed to the 80; the water here is drained to the bottom of the 130. At the western shaft the water is 6 fms. 3 ft. below the 150; we cannot fork the two shafts at one time, the water is too powerful for our pitwork; however, I hope if we have anything like good speed to get the mine drained throughout to bottom in a fortnight from the present time. I shall sell to-morrow about 11 tons of tin; if the mine be drained, as I expect, we shall sell more tin in the next four weeks. The mine is holding out very good promise, and when we get well equiped with machinery it will soon tell its own tale. Tin sold, 11 tons 16 cwts. 3 qrs., at 43l. 5s. per ton and carriage, 513l. 18s. 11d.

WHEAL KITTY (St. Agnes).—S. Davey, R. Harris, April 14: There is no change calling for special remark in either of the points of operation since our report for last week.

WHEAL NEWTON.—H. Bennett, April 19: The 40 end, east of Cook's shaft, on the stiver lode, is looking well, yielding some very rich silver ore. We have set another stope in the back of this level, where we have some very good silver-producing stuff. All the other bargains on this and the Harrowbarrow lode remain much the same as last week.

WHEAL PEEVOR.—W. T. White, Joseph Pryor, April 14: Setting Report: Six

Frederick's engine-shaft to sink from the 70 to the 80, the whole lift as a certain bargain, to twelve men, at 25*l.* per fathom; we are not carrying the lode at present, but the last taking down was worth 1 ton of tin per fathom. The 70 to drive west, on south lode, by six men, at 7*l.* 10s. per fathom, lode worth 20*l.* per fathom. The 70 to drive east, by four men, at 3*l.* per fathom; this end is now in the slide—the same which passed through in the level above. No. 1 stope in the back of the 70 west, on south lode, by four men, at 2*l.* 15s. per fathom, lode worth 10*l.* per fathom. No. 2 stope in the back of ditto, by four men, at 3*l.* per fathom, lode worth 9*l.* per fathom. No. 3 stope in back of ditto, by six men, at 3*l.* per fathom, lode worth 11*l.* per fathom. The 60 to drive west, on south lode, by six men, at 5*l.* 10s. per fathom, lode worth 18*l.* per fathom. A winze to sink in the bottom of this level, by six men and three boys, at 9*l.* per fathom, lode worth 20*l.* per fathom. No. 1 stope in the back of this level, by four men, at 2*l.* 15s. per fathom, lode worth 12*l.* per fathom. No. 2 stope in the back of ditto, by four men, at 2*l.* 15s. per fathom, lode worth 9*l.* per fathom. No. 3 stope in the back of ditto, by four men, at 2*l.* 15s. per fathom, lode worth 10*l.* per fathom. A cross-cut to drive south, to intersect the south lode at the 48, by four men, at 5*l.* 10s. per fathom. The 36 to drive west, on the north lode, by two men, at 5*l.* 10s. per fathom, lode producing a little tin, but not enough to value. We are pleased to say the mine continues to open up very well, the best proof of this being that we are able to raise about 20 tons of tin per month.

WHEAL RUSSELL.—J. Bray, April 19: The lode in the 25 is 2 ft. wide, with a little ore. The lode in the rise above this level is 3 ft. wide, very promising, worth 12*l.* per fathom. We shall sample the end of this month from 60 to 70 tons.

WHEAL UNY.—W. Rich, Matthew Rogers, Joseph Rich, April 16: The plunger poles at Hind's shaft are cut badly, owing to the water being so very corrosive. We have during the past week put in two new poles, which has hindered the operations in the bottom of the mine. We hope, however, to resume operations in the bottom of the mine to-morrow. The 150 rise, east of King's shaft, is worth 6*l.* per fathom. The back of the 150, west of incline, is worth 12*l.* per fathom. The 140, east of King's, is worth 12*l.* per fathom. The 130 east is worth 7*l.* per fathom. The rise in the back of the 60 west is worth 10*l.* per fathom.

WHITE CLIFF.—John Jones, April 19: The lead in the bottom of trench, and in the west forebreast at Gorlan, is quite as rich as when I last wrote, the lead-bearing ground being from 4 to 5 ft. wide; and, in order to get more hold on it for stoping, I have now (the water not being so troublesome) set the sinking of the shaft until the end of this month at 15*l.* per fathom, the men to have the use of the company's tools, but to find their own powder and candles.—Alltwen: The lead in the south end here still maintains its richness, and indeed improves, and shows indications of still greater improvement. The stoping here I have set at 5*l.* 5s. per fathom. Our surface work at present consists of preparing to receive our dressing machinery.

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, APRIL 20, 1877.

IRON.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde..	2 14 3-	—
,, Scotch, all No. 1 ...	2 15 6-	3 5 6
Bars, Welsh, f.o.b. Wales	5 15 0-	6 0 0
,, ,, in London.	6 7 6-	—
,, Stafford., ,, .	7 15 0-	8 15 0
,, in Tyne or Tees ...	6 2 6-	6 5 0
,, Swedish, London ..	10 0 0-	10 10 0
Rails, Welsh, at works..	5 0 0-	5 5 0
Railway chairs	— - -	—
,, spikes	— - -	—
Sheets, Staff., in London	9 0 0-	9 5 0
Plates, ship , in London	7 10 0-	—
Hoops, Staff.	7 15 0-	8 15 0
Nail rods, Staff. in Lon.	7 10 0-	7 15 0
STEEL.		
English, spring	14	0 0-28 0 0
,, cast	28	0 0-45 0 0
Swedish, keg.....	16	0 0- —
,, fag. ham.	17	10 0- —
LEAD.		
English, pig, common .	20 12 6-	20 15 0
,, ,, L.B. nom.	21 0 0-	—
,, ,, W.B.	21 10 0-	—
,, sheet and bar..	21 15 0-	—
,, pipe	22 0 0-	—
,, red	22 10 0-	—
,, white	27 0 0-	28 0 0
,, patent shot ...	24 10 0-	—
Spanish.....	20 7 6-	—
QUICKSILVER.		
Flasks of 75 lbs., ware.	7 5 0-	—
SPELTER.		
Silesian or Rhenish ..	20 5 0-	20 10 0
English, Swansea	22 10 0-	—
Sheet zinc	24 5 0-	26 0 0

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b...	73 0 0-	74 0 0
,, bars ,, ...	74 0 0-	75 0 0
,, refined.....	76 0 0-	77 0 0
Australian	68 10 0-	68 15 0
Banca	71 0 0-	71 10 0
Straits	69 0 0-	69 5 0
COPPER.		
Tough cake and ingot.	76 10 0-	77 0 0
Best selected	77 0 0-	78 0 0
Sheets and sheathing .	81 0 0-	—
Flat Bottoms	84 0 0-	85 0 0
Wallaroo	76 10 0-	—
Burra, or P.C.C.	75 10 0-	—
Other brands	74 0 0-	76 0 0
Chili bars, g.o.b.....	69 10 0-	—
PHOSPHOR BRONZE.		
Bearing metal	£112	0 0
Other alloys	£120 0 0-	140 0 0
BRASS.		
Wire	8½d.-	9½d.
Tubes.....	10½ -	—
Sheets	9 -	—
Yel. met. sheath. & sheets.	7 -	7¼
Nails composition.....	8¼ -	9¼
TIN-PLATES.*	per box.	
Charcoal, 1st quality ...	1 2 6-	1 3 6
,, 2nd quality ...	1 1 0-	1 1 6
Coke, 1st quality	0 19 6-	—
,, 2nd quality	0 18 0-	—
Black .....per ton	16 0 0-	16 10 0
Canada, Staff. or Gla., at Liverpool	12 0 0-	13 0 0
Black Taggers, 450 of 14 × 10	30 0 0-	—

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—The anticipations of war have completely unsettled our markets, and given an additional impetus to the downward tendency of prices. This week has been particularly gloomy, and full of evil forebodings; and much anxiety and uneasiness is displayed regarding the future. The late screeching, howling, and searching east winds are strongly symbolical of the commotion, tumult, and anguish that may very shortly be expected to prevail in the East; and there is already intense excitement, and alarm, and apprehensions of coming troubles and trials proceeding from actual warfare. The numerous inconveniences, difficulties, and privations that usually accompany war are certainly much too serious to be overlooked, or lightly entertained, and, in fact, ought not be underrated while time remains for making preparations against them. That there should be but little doing under existing circumstances is not surprising, and the less disposition towards speculation the better, as business should now be wholly and purely of a legitimate character, and entirely confined to immediate requirements. Every precaution is necessary to avoid losses, and this will be best effected by closing risks and abandoning speculations: and our markets will be subject to less fluctuation and confusion if speculators will only abstain from operating until the present cloud is dispersed, and by so doing their own safety and interests will be secured. It would, indeed, be a frantic act on the part of any buyer to increase his holdings at the present time simply for speculative purposes.

A speculator is naturally rather timid, and is usually one of the first to take alarm by reverses, as he mostly depends upon the market for the result of his operations, and in the event of any panic he would, perhaps, be forced to submit to a ruinous sacrifice or be crippled with his bargain. Now, if a war between Russia and Turkey should be declared, and there are few, if any, who still believe in peace, and it should ultimately extend to other nations, which seems not at all improbable, involving Roumania, Austria, Greece, Egypt, and, perhaps, England, it would undoubtedly cause a most frightful panic, and a terrible commercial crisis. Supposing, then, war to break out, and its proportions to greatly expand, the money market would soon be convulsed, and enhanced rates would be demanded. Loans becoming due might be very difficult to renew, and financing not only troublesome even on onerous terms, but altogether impracticable, for be it remembered that it is not so many years since under severe pressure when advanced upon Consols could not be obtained.

It may be so again, and it is as well to take warning in time. Were our shipping trade tolerably good a temporary suspension of commerce with Russia and Turkey might not be missed; but, unfortunately, universal distress and continued depression is the characteristic feature of the markets of nearly the whole world, and this distress will be decidedly increased by war, for at such a time the corn market is always sensitive and liable to extremely high rates; and a dear loaf, combined with scarcity of work, would inflict an incalculable amount of misery and suffering upon the working classes and the middle and upper grades of society, whose incomes in many instances have been much curtailed by the poor returns of business, and besides in sundry other ways would also have to bear the burden of increased taxation. While the national expenditure, therefore, would be greater, and living dearer, the incomes of the people diminishing, many falling into straightened circumstances, it is quite possible—indeed, it seems exceedingly probable—that matters would be aggravated, for further State repudiations might be reckoned upon for a certainty.

The question may well be asked will Russia be able to keep faith with her creditors, and will not war form a convenient excuse for a suspension of dividends and redemptions? Austria and Hungary are almost sure to be implicated, and will not the exigencies of the State in their case, as it has been pleaded before, form the first consideration, especially as no other loan would meet with any response in England? Egypt is sufficiently embarrassed, and further pressure to equip troops for Turkey might prove fatal; and, as regards Roumania, there will be a great, if not exhaustive, strain upon her resources. These only constitute a few of the calamities which may happen, but surely this is enough to effect a general depreciation in the value of all commodities, excepting those required for war? Not only will the industries, manufactures, and cultivation of the land of those countries which may hereafter be engaged in open hostilities be neglected and deranged, but the disorder will extend far and wide, to other parts, and time, money, and energy will all be devoted to the war. The anticipations are bad enough, it remains to be seen whether the reality will be worse. So far as metals are concerned, it could not have happened at a more inopportune moment, on account of the accumulation of heavy stocks, and we do strongly urge upon feeble holders to minimise their risks, and to realise with as little delay as possible, because there is no prospect of any improvement, and there is every probability of flat and declining markets for a considerable time to come.

COPPER.—Objection is sometimes taken to emphatic expressions of opinion upon the market, but, however guarded and careful we are to avoid affecting individual interests, there is a public duty which demands at times the free use of plain and unmistakeable language. It is no satisfaction to have to record a declining market week after week and month after month—indeed, it is exceedingly distasteful—but, if such is its course, how incorrect would it be to report otherwise, and unpalatable as it no doubt is to some to hear it, yet we do not hesitate to say that the downward tendency of the market is still very decided and pronounced. It is open to everyone to ascertain the truth, and a reference to or a comparison with the prices current, which are placed in juxtaposition to the Remarks, will always confirm or not the statements which are made from time to time. Now, the reason why we consider the market at the present time to have a downward direction is simply that sales are so difficult to effect, and buyers will not purchase more than trifling quantities unless they obtain a further concession, and as stocks of Chili for the first fortnight of this month have increased from 13,847 tons to 15,042 tons there is nothing favourable in statistics to afford relief, but, on the contrary, stocks are accumulating, and importers appear to be obliged to have recourse to forced public sales.

The effect of these sales is palpable, and to persist in holding them at unreasonable times can only lead to an unsatisfactory end. Buyers did not move for them, and it has already been shown that they have proved most detrimental to the interests of sellers, and the consideration due to the trade generally ought to determine their withdrawal. On Tuesday last the sales of Australian again took place, and the result was a further decline in the prices of these brands. Wallaroo cake sold at 76*l.* to 76*l.* 7s. 6d. per ton, averaging 76*l.* 3s. 6d., and Burra Burra from 75*l.* 2s. 6d. to 75*l.* 7s. 6d., averaging 75*l.* 3s. 6d. The day previous to the sale Wallaroo was quoted 76*l.* 10s., and Burra 75*l.* 10d., but no business passing. The Chili charters for the first fortnight of this month have been telegraped at 1800 tons, since which prices have receded, and to-day g.o.b.'s are quoted at 69*l.* 10s. The mail leaving Bombay on March 24, states copper and yellow metal to be more firmly held, but the limits sent over do not exceed 81*l.* for copper, at which sum sales of 4 by 4 sheets have been made, but there are no longer buyers at this price, and 6¾d. for Yellow Metal; sellers, however, are holding for 7d. for 4 by 4 sheets. English tough and best selected are very dull, and have declined in value. From New York on the 7th inst. the copper market was reported steady, and a little more enquiry for ingot, but no advance in price; sales of about 250,000 lbs. Lake at 19¼ to 19¾, closing at the latter price.

IRON.—There is no quotable change, and the market continues to assume a very dreary look. Instead of the reduced prices stimulating trade, the demand seems to be contracting, and unless some impression can be made upon the colliers and miners to accept reduced wages there seems very little hope yet awhile of the market getting better. According to all accounts the production will have to be diminished, for it is impossible to go on accumulating stocks at these prices with more prospect of a decline than a rise. The crisis to which the iron trade is brought necessitates a change in some form or other, and how else can it be effected than by cheaper labour; of course if machinery could be invented so as to a great measure to take the place of labour, minerals might be raised in a much easier and cheaper manner, but in the absence of such invention it must remain a question of wages.

Every effort, no doubt, should be directed to the invention of mining machines, and then we might regain our position, and the impossibility of expanding our trade under the present system of labour ought to lead up to some more efficient and cheaper substitute. How is it that the Americans can surpass us and can carry off orders for rifles for Turkey and Russia, instead of such orders finding their way to Birmingham? Certainly not because labour is cheaper in American than in England. They never yet had that advantage; but from the opposite reason, their dearness of labour has led them to use machinery more, and which enables them to supply cheaper, quicker, and with better finish. As necessity is said to be the mother of invention, it is to be hoped that we shall not be long before we can improve upon and satisfy all other nations in the production, manufacture, and price of all descriptions of iron. In the meanwhile let us act unitedly in keeping together what remains, and strain all means by mutual concessions to destroy the competition of foreign countries. We must hold our own at all costs, and the British workman will not fail to do his part and bear an equal share of the burden for the good of the nation. Scotch pigs have only slightly varied, and are quoted 54s. 3d. mixed numbers, cash.

SHIPMENTS.

Week ending April 15, 1876	Tons	11,366
Week ending April 14, 1877		10,721
Decrease		645
Total decrease for 1877		3,791
Imports of Middlesborough pig-iron into Grangemouth:—		
Week ending April 14, 1877	Tons	8,025
Week ending April 15, 1876		3,260
Increase		4,765
Total increase for 1877		16,177

LEAD.—The market has shown a slightly hardening tendency, and sellers are not general at the lowest quotation.

SPELTER.—A reduction in Silesian to 20*l.* 5s., 20*l.* 10s., has taken place, but there does not appear to be a very active enquiry at these rates.

QUICKSILVER.—There is no alteration for this metal; 7*l.* 5s, continues to be quoted, and offers of 5s. less per bottle have been refused to-day.

TIN-PLATES.—There is no improvement to report in the general condition of this market, and cokes and charcoals are both in limited demand. The exceedingly low prices which are now ruling ought to attract the attention of buyers, but, strange to say, it offers no inducement at the present time, and merchants prefer waiting until political affairs assume a more peaceful aspect.

TIN.—The price of English has undergone a change, and some sellers have accepted much lower rates; the last quotation is unusually wide, there being a difference of 30s. per ton between the lowest and highest, which is rather an extraordinary circumstance, for the English smelters, as a body, seem to work very amicably and well together, and such a wide difference as that of to-day is somewhat marvellous and unaccountable; the closing price on late charges was settled at 72*l.* 10s. to 74*l.* The value of Australian and Straits for the most part has been lower, but strange to say that to-day when weakness was displayed in English rather more strength was manifest in foreign, and although the improvement was merely slight, amounting only to 2s. 6d. per ton, yet the tone of the market was more cheerful, and at the last closed with firmness at this advance of fully 2s. 6d. per ton. Although a rise of 2s. 6d. per ton is decidedly small in comparison to former advances, and a very little consolation to those who hold at high prices, yet it is something, for it denotes a turn which, if judicially managed, may not only arrest any further downward tendency for a time but lead to better prices.

THE IRON TRADE—(Griffiths's Weekly Report).—Friday Evening. The warrant market opened this morning strong with buyers at 54s. 3d., and has remained firm during the day, and closes at that figure, an advance this week of 6d. per ton. We quote makers' No. 1 iron—Gartsherrie, 61s. 6d.; Coltness, 65s.; Calder, 61s. 6d.; Langloan, 62s.; Summerlee, 60s.; Monkland, 55s. 6d., f.o.b. Glasgow; Glengarnock, 59s. 6d.; Eglington, 56s. 6d. f.o.b. Ardrossan; Shotts, 61s. f.o.b. Leith; Kenniel, 56s. 6d. f.o.b. Bo'ness. The rumours of war, and consequent panics on the London and continental stock exchanges, have alarmed the trading community and ironmasters, and consumers of iron, alike exercise greater caution in commitments of any kind which involve spending money.

The present awful pause causes all to reflect and to wait. Hence we have very few new transactions of the slightest magnitude to notice in iron on our market this week. Prices remain unchanged, and business must be reported very quiet. Scotch pigs are a mere shade better. Middlesborough unchanged, with a flat market. West Coast, Staffordshire and Shropshire, firm in price, but no business reported. All other metals are weak, with the exception of lead, the market for tin, spelter, and copper is more languid than ever, and prices appear gradually to recede. Australian tin was sold to-day at 68*l.* per ton. It is pleasing to be able to state that no further failures or rumours of failures in any iron centres in the provinces have reached us this week.

Messrs. HARRINGTON, HORAN, and Co. (Liverpool, April 14)—COPPER: Arrivals here during the fortnight of West Coast S.A. produce:—Iberia, from Valparaiso, with 535 tons bars, and 100 tons ingots; Achievement, from Carrizal, with 770 tons regulus; Illemani, from Valparaiso, with 725 tons bars; Santa Lucia, from Valparaiso, with 100 tons. At Swansea—Ianthe, from Carrizal, with 610 tons regulus; Pacific, from Tocopilla, with 464 tons ores, and 160 tons regulus; Capricorn, from Caldera, with 535 tons bars. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	669	1634	8,934	2	—
Swansea	2398	5746	2,165	—	—
Total	3067	7380	11,099	2	—

Representing about 15,042 tons fine copper, against 13,847 tons March 11; 10,139 tons April 15, 1876; 12,428 tons April 15, 1875; 21,100 tons April 15, 1874. Stock of Chili copper in Havre, 10,450 tons fine, against 2990 tons April 15, 1876; stock of Chili copper afloat and chartered for to date, 12,200 tons fine, against 14,422 tons April 15, 1876; stock of foreign copper in London, chiefly Australian, 3764 tons fine, against 6104 tons April 15, 1876.

According to the Board of Trade returns, the total imports and exports into and from this country for the first two months of the following years were:—

IMPORTS.	1875.	1876.	1877.
Copper in ores .....Tons	1,214	2,265	2,763
Ditto, regulus	4,206	3,186	4,055
Ditto, bars, cakes, and ingots	12,154	8,092	10,170
In pyrites (estimated).....	3,543	3,987	4,604
Total imports.....	21,117	17,530	21,592
EXPORTS.			
English copper, wrought & unwrought	5,143	5,103	5,624
Foreign copper, unwrought.....	3,263	3,542	4,778
Yellow metal	3,076	3,248	4,492
Total exports	11,482	11,893	14,894

At the Truro Ticketing, on Thursday, 2849 tons of copper ore were sold, realising 11,797*l.* 16s. 6d. The particulars of the sale were—Average standard, 10*l.* 13s.; average produce, 6¼; average price per ton, 4*l.* 3s.; quantity of fine copper, 185 tons 17 cwts. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
March 22	3025	£103 19 0	6⅝	£4 2 0	12s. 5d.	£62 4 0
April 5.	1269	100 11 0	7⅛	4 14 0	12 8	63 9 0
,, 19.	2849	105 13 0	6⅛	4 3 0	12 8⅛	63 10 0

Compared with the last sale, the advance has been in the standard 10s., and in the price per ton of ore about 9d.

Since our last there has been a war panic in all public securities, but the MINING SHARE MARKET, though devoid of animation, has not suffered to any great extent, nor is there any material change in quotations, which continue, as they have been for some time past, merely nominal.

In reviewing the prospects of the mining interest at the present time, however much we may regret the probable outbreak of war, we cannot lose sight of the fact that the great demand for metals which war invariably occasions has always had a beneficial effect on this particular branch of industry.

Owing chiefly to the Crimean War, the year 1855 was the most prosperous ever known for British mining. The dividends from profits in 54 Cornish and Devon mines that year amounted to 340,714*l.*, or 22,838*l.* more than the year before, although Buller, on its decline in the latter year, had fallen off 20,480*l.*

The total amount of dividends paid in 1855 were:—

British	£340,714
Foreign	209,320
Welsh	7,535
Scotch	117
Irish	29,660
Isle of Man	9,960 = £597,306

We are now getting our largest dividends from lead mines in Wales and in the Isle of Man, which then paid so little.

In 1855 also there was a great rise in all mining securities; many of them advanced more than 50 and 100 per cent. Rosewarne rose from 35 to 140; West Seton, 200 to 650; Basset, 550 to 850. Many of the progressive mines rose also some hundreds per cent.

The mining interest, therefore, is not likely to suffer by war. We are, judging from the past, more likely to see a rise in metals, succeeded by a general rise in shares in *bona fide* mining undertakings. And through the long depression in the market and other causes many of these are at very low and tempting prices.

During the week the chief business has been in lead mines, including Van, Leadhills, Rookhope, West Tankerville, West Cuivreton, Great Laxey, North Laxey, Glenroy, Van Consols, and a few others.

At the Cornish Ticketing on Thursday the standard for copper ore advance 1 10s. per ton. The average price obtained was 4*l.* 3s. per ton.

Among TIN MINES there has been no change to notice, either in quotations or prospects. Dolcoaths are quoted 32 to 33; Caru Brea, 32 to 34; Tincroft, 17 to 18; South Condurrow, 7¼ to 7¾. Wheal Grenville, 20s. to 25s.; the sale of tin, 11 tons, brought 513*l.* 18s. or 43*l.* 5s. per ton. The agent hopes to sell more for the next month, and the mine is holding out good promises for increased returns when equipped with machinery. Wheal Agar, 3¼ to 3⅜; South Frances, ⅝ to ¾; West Frances, 4 to 4¼; West Basset, 3¼ to 3⅜. Wheal Coates, 1½ to 2; lode in shaft gradually improving, and now worth 40 lbs. of tin to ton of stuff; value 22*l.* per fathom. Shaft set at 18*l.* per fathom.

As to COPPER MINES, South Caradon shares are quoted 120 to 130; at the meeting the accounts for the three months ending January showed a profit of 1324*l.*, and a dividend of 2*l.* 10s. per share was declared, leaving 222*l.* to the credit of next account. The copper ores sold in the quarter realised 10,177*l.* The agent reports that the mine is still looking well. East Caradon, ⅞ to 1; at the meeting here there was a loss of 65*l.* shown on the quarter, and a balance in hand of 207*l.* The sale of ore on Thursday realised 630*l.* Marke Valley, ¾ to 1; at the meeting here the accounts showed a loss of 228*l.* on the quarter. The sale of ore on Thursday realised 1161*l.* Bedford United, 13s. to 15s.; there is a fine lode at the engine-shaft. Cathedral, 20s. to 30s.; Penstruthal, 10s. to 12s. 6d.; West Tolgus, 59 to 61: Devon Great Consols, 3⅞ to 4¼; the sale of copper ore for the month, on Thursday, realised 3030*l.*

Wheal Crebor, 2½ to 3; the 168 east is looking better, and the winze is now communicated with the 120 fm. level. The sale of ore realised 548*l.* 15s. Prince of Wales, ⅜ to ⅝; the lode in the stope in the back of the 55 is worth 10*l.* per fathom. The sale of ore on Thursday realised 217*l.* 11s. 6d. Parys Mountain, 7s. 6d. to 8s. 6d., we understand a special meeting is to be called to take into consideration the working of Morfa Ddu by a distinct company, and if the project can be carried out a valuable property now idle would be worked, and a large sum obtained for the Parys Mountain Company. The 90 east is looking better, and the sampling next week will be 240 tons.

LEAD MINES are pretty firm generally. Roman Gravels, 12 to 13; there is no particular change here. The sale of ore—220 tons—realised 301*l.* Tankerville, 8¼ to 8¾; the 180 east is worth 3 ton per fathom; west 3 tons. The lead ore sold—100 tons—realised 1332*l.* 10s. West Tankerville, 1¼ to 1½; Van, 35 to 37. East Van, 6 to 6½; the indications for lead at the 25 not being of sufficient value, Tempest's shaft is to be sunk to the 40, which will occupy three months. Van Consols, 1⅞ to 2; Great West Van, pref., 2 to 2½; Aberdaunant, 10s. to 15s.; Assheton, 1⅜ to 2.

Derwent, 3 to 3½; the Sun vein is discovered in the little limestone at the 70 fm. level, and particulars of its value will be received soon. Some time ago a branch was met with valued at 15 cwts. per fathom., which tells well for the lode, the discovery of which is considered important. Combmartin, 10s. to 12s. 6d.; at the 31 the lode continues to yield fully ½ ton of rich silver-lead per fathom, and a good pile of stuff has been hauled to surface. Clementina, 35 to 40; the lode in the shaft continues worth 1 ton of lead ore per fathom. D'Eresby, 20 to 25.

Great Laxey have been in demand at 20 to 21. North Laxey, 15s. to 17s.; this mine has sampled 50 tons of lead ore, and is looking well. Glenroy, 1¼ to 1½; a telegram states that "the 60 south is still opening out well, lode containing blende, and more lead mixed throughout. No other change." Glyn, 1⅝ to 1¾; Herodfoot, 3 to 4; Leadhills, 6 to 6½, ex div.; Pateley Bridge have been enquired for, at 2½ to 3. Pennant, 5½ to 6; Pennerley, 10s. to 12s. 6d.; Plynlimmon, 7s. 6d. to 10s.; Llanrwst, 2 to 2½; Gorsedd, 5 to 5½; Rookhope, 18s. to 20s., and still in request; West Chiverton, 16 to 17; West Craven Moor, 12 to 13; Grogwinion, 3 to 4; Red Rock, 1⅞ to 2⅛; South Cwmystwith, 2½ to 3⅛; St. Harmon, 2⅞ to 3¼; Wye Valley, 3 to 4; West Wye Valley, 2 to 3; West Goginan, ½ to ¾; Bodidris, 1 to 1½; St. Patrick, 1⅝ to 1⅞. A telegram from Clementina, received at the office since the above was written, states: "Lode in engine-shaft worth 1½ ton of lead per fathom; 25 end worth 1 ton per fathom. Particulars by post."

In FOREIGN MINES the quotations are—Argentine, 4 to 4½; Condes, 4½ to 4¾; Blue Tent, 3 to 3½; Cape Copper, 40 to 41. Chontales, 7s. to 8s.; a telegram has been received that the profit for the month is 150*l.*, and the prospects very encouraging. Eberhardt and Aurora, 8 to 8½; Exchequer, 1½ to 1⅝; Flagstaff, 2⅞ to 3; Linares, ¾ to 1; Javali, 7s. to 9s.; New Zealand Kapanga, 2 to 2½; New Quebrada, 3⅜ to 4; Pestarena, 3s. to 5s.; Richmond, 6 to 6½; Santa Barbara, 1⅞ to 2½.

The Market for Mine Shares on the Stock Exchange during the week has been depressed, but not to the extent observable in other departments. The political complications adversely affecting other securities have continued to prejudicially operate upon mine shares, but the variations are unimportant.

Cape Copper, 40 to 41; the latest advices received state that the returns for February were from Ookiep 950 tons of 32 per cent., and from Spektakel 37 tons of 25 per cent. At Ookiep the 80 has fallen off in value. The 68 east has improved considerably. The valuable ground at this place is in the lower part of the driving, and this fact is in accordance with what we had reason to expect—that the main bunch is in the bottom of the 68, in the eastern part of the mine. The stope in the 80 continues to yield well, and the same can be said of the one in the bottom of the 68. The other stopes throughout the mine are yielding the estimated quantities of copper ore; and, on the whole, they are looking moderately well. They are getting on well on the dressing floors. With regard to the trial mines the 20, east from the shaft at Karolusberg, continues poor, but the vein throughout is spotted with copper ore of good quality. The 20 west is looking a little more favourable, and the present end yields some good stones of ore. The 10, east from the shaft, continues without

change to notice. We have now got into a position to push the Nahuabeep shaft below the 17 at a rapid rate. The present bottom is in good ground, and it yields some lumps of copper ore of very good percentage. The 17, east from the old shaft, still yields a small quantity of copper ore, which is being put aside for dressing purposes, but there is no particular change in the nature of the ground. The 20, east at Narrap, has not changed since last report. St. John del Rey, 260 to 290; the latest telegram, dated Rio, April 17, is much more favourable, and would appear to show that the poor stuff has at last been passed through. The produce for the first eight days of April was 8750 oits., of the value of 3390*l.*, the ley of the ore being 7·2 oits. per ton. All is going on well. This confirms the advices dated Morro, March 17, which stated that the February produce was the smallest for some time, and explained that it was attributable to the large proportion of poor mineral quarried in the western section of the mine, from which the B kibble had been almost exclusively supplied. This mineral had only yielded in stamps 2·957 oits. of gold per ton, and hence the great influence this poor mineral had had in the general gold return. At the date of advices this stope in B section was almost cleared. When they get the B kibble brought to bear on the stopes eastward they would get average produce. The mineral from the eastern section, though having some killas mixed with it, and which had not been perfectly rejected, gave 8·155 oits. per ton. As soon as mineral is available for extension eastward they would have the B kibble supplied with average mineral from that part of the lode. The total 23,527 oits. obtained in February gave, at 7s. 9d. per oit., 9116*l.* 16s. 7d., against which the cost was 6113*l.* 19s., leaving 3002*l.* 17s. 7d. profit. About 4000*l.* may be expected as the March profit. Condes, 4¼ to 4¾; the fortnightly shipment has been 17 tons of regulus and 15 tons of raw ore. The mines are reported to be looking well.

Eberhardt and Aurora, 7⅞ to 8⅛; private advises state that the tunnel is now in over 1000 ft., and that work on it is being pushed to its fullest capacity. The ledge is not expected to be struck until about 1000 ft. more have been completed, when something pretty good is expected to be cut. While running the first 1000 ft. they crossed two seams of good-looking quartz, but they were only a few inches in thickness. Much annoyance is being experienced in the tunnel from bad ventilation; a flume was being constructed to supply the workmen with pure air from outside, and carry off the vitiated atmosphere caused by blasting.

Flagstaff, 2⅞ to 3; private advices are of more than ordinary interest; a vast body of high-grade ore, yielding over $200 in silver per ton, has been struck 550 ft. west from the main shaft, considerably beyond the limit of any former explorations, and at a depth of nearly 900 ft. from surface. Appearances are thought to indicate that the discovery marks the eastern limit of a great bonanza, reaching possibly to the surface. On the opposite side from the shaft, where drifting was recently resumed in the direction of the South Star property, a productive body of rich ore has also been developed. The horizontal distance between these two discoveries is nearly 1000 ft., thus, it is said, not only adding largely to the production of the mine in the immediate future, but affording conclusive proof of the continuance of the ore both longitudinally and in depth. This rich strike in the fifth level is at the lowest point yet reached in the underground developments.

Emma, ⅜ to ½; the latest advices from Salt Lake City states that the "redemption time" of the Emma Mine expired on March 16, and that it is now the property of Trenon W. Park, who, it is reported, will work it this season and prove to the world its true value. At the Mineral Hill Mine the mill has been running a 15-stamp mill on good milling ore from the mines. Chicago, 4 to 4½; the general manager telegraphs to-day that they have run two furnaces 26 days. The net profits for the month of March was $4000. The furnaces are stopped temporarily, but will resume operations, it is expected, in four days. Gold Run, ½ to ¾; the superintendent at the mine telegraphs to-day that they have cleaned up after a run of 33 days, and obtained a total produce of $4500, whilst the expenses for the same period were $3250, leaving a net profit of $1250.

Exchequer, 1⅝ to 1¾; advices state that the mill and furnace are working satisfactorily, and that O'Hara's experiments on the different qualities of low-grade ore had been concluded. The manager has now, probably, started upon average ore, and will be able to make a return therefrom about the middle of May. I.X.L., ¾ to 1; Mr. Arnott had arrived to complete the brickwork at the mill, and Mr. O'Hara was on the spot, ready to commence his furnace, and in about two months the manager expected to run the new mill upon the large reserves of ore in the upper levels; in the meantime the hoisting works have been finished, and a contract made to sink to the 400 ft. level, while in the 200 and in the Ophir tunnel the indications were favourable for fresh discoveries as the drifts progressed.

The market for hydraulic or gold washing shares during the week has presented no feature of change, and prices remain at last week's quotations. The latest news from the Pacific Coast speaks of heavy rains, but there is no store of snow in the mountains. Blue Tent, 3 to 3¼; the manager has telegraphed a further clean-up, giving $8900. Cedar Creek, ½ to ⅝; Col. Lullum reports that he is steadily washing, and that on March 24 he fired the first blast wholly in undrifted ground. He expresses satisfaction that he will now soon be washing gravel from which the cream has not all been removed. Oregon (preference), 4 to 4¼; a telegram received during the week announces that the work on the Reed and Thoss claims gave returns $2300, against an estimated expenditure of $1600.

The shares in Lead Mines have shown very little changes, prices continuing quite nominal. Leadhills, 6 to 6½; the directors have accompanied the warrants for the interim dividend announced a fortnight since by a report from Captain Arthur Waters, dated April 13. In reporting upon the various operations he says that Gripp's level, going south from shaft, is now within about 30 fms. of holing to the adit coming north from Jeffrey's cross-cut, and he is glad to say that the lode in the end in question has greatly improved in character lately. This is a very rich lode south of Reid's shaft, but the general opinion is that the Old Raik Mine, some 100 fathoms or more south of the rich ground was far more productive than anything they have seen. To properly work the old mine in depth they have to-day selected a site for a new engine-shaft, which is to go down in the centre of the ore ground. Operations will be commenced next Monday or Tuesday. Mr. Nevin has gone fully into particulars as to the returns made from July 1, 1876, to March 31, 1877, and it appears that the total raisings of lead ore were 2020 tons. Of this the lead ore sold was 823 tons; lead ore dressed on hand, 199 tons; lead ore undressed, 387 tons; lead ore smelted, 591 tons; and slimes, halvans, &c. Last month 389 tons of ore have been dressed, so that Capt. Waters considers they are really in a position to dress 400 tons a month with the present machinery, if the stuff can be got.

Van, 38 to 39; the various operations at this mine are progressing satisfactorily, and the different ends are looking well, especially in the 90, which is improving both east and west. Van Consols, 1¾ to 2¼; the new drawing-shaft is rapidly reaching the 50, 90 fms from surface; the next level will be reached within the month. Good rocks of lead are already being passed through in the western end, which are, no doubt, in close connection with the course of lead gone down under the 40, west of Murray's shaft. A winze has been commenced under the 40, west of drawing-shaft, in a good lode of lead. Great West Van preference shares 2 to 2½; Eliza shaft will now be sunk with all speed, and the fine weather will enable the dressing of ore to be carried forward with good speed. Glyn, 1⅞ to 1¾; dressing of ore has commenced, and all work is being pushed forward with confidence as to successful results. Pennerley, ½ to ⅝; the 80 fathom level west, on Warm Water lode, has improved, now worth 3½ tons per fathom. The indications in the end of the cross-cut towards the lode at the 120 are most encouraging. Other points are without change.

Pateley Bridge, 2¼ to 2⅜; the Rake vein both east and west, at the 30, is opening out in a most encouraging manner, and the agent is of opinion that he is on the eve of a good discovery. The Lumb vein, in the 20, is also improving. Other parts of the mine looking well, and smelting going on steadily. Penstruthal, 10s. 6d. to 12s. 6d.; the bottom of the mine is reported to be becoming more and more congenial for a great deposit of copper ore. The usual quantities of tin and copper ore are being returned. Cathedral, 20s. to 30s.; the bottom levels are being driven with all speed, another parcel of ore is being prepared for the market, and the managers are as confident as ever that a great course of copper must exist in close connection with the unmistakable indications that have been passed through in reaching the present depth—about 80 fathoms from surface. The lode maintains its size, and any day (judging from present appearance the lode, which is now producing copper more or less at all points of operation) a very rich course of yellow copper ore may be met with. Pedn-an-drea meeting will be called in a few days, at which a dividend will be declared from a good sound margin of profit.

Subjoined are the closing quotations:—

Assheton, 1¾ to 2¼; Carn Brea, 32 to 34; Devon Great Consols, 3½ to 4; Dolcoath, 33 to 35; East Caradon, ⅝ to ⅞; East Van, 5¾ to 6¼; Glyn, 1⅝ to 1¾; Great Laxey, 20 to 22; Great West Van, ¼ to ½; Hingston Down Consols, ⅝ to ⅞; Leadhills, 6 to 6¼, ex div.; Marke Valley, ¾ to 1; Pateley Bridge, 2¼ to 2¾; Parys Mountain, ⅜ to ½; Pennerley, ½ to ¾; Penstruthal, ½ to ⅝; Roman Gravels, 12 to 12½; Tankerville, 8¼ to 8¾; Tincroft, 17 to 19; Van, 35 to 37; Van Consols, 1¼ to 2; West Assheton, ¾ to 1; West Basset, 3 to 5; West Chiverton, 15 to 17; West Tankerville, 1¼ to 1½; Wheal Crebor, 2½ to 3; Wheal Grenville, 1 to 1¼; Almada and Tirito, ¼ to ⅜; Argentine, 4 to 4½; Birdseye Creek, ⅜ to ⅞; Blue Tent, 3 to 3¼; Cape Copper, 40 to 42; Cedar Creek, ½ to ⅝; Chontales, ¼ to ½; Colorado Terrible, 1⅝ to 1⅞; Condes of Chili, 4¼ to 4½; Don Pedro, 7-16ths to 9-16ths; Eberhardt and Aurora, 7⅞ to 8⅛; Emma, ¼ to ¾; Exchequer, 1⅝ to 1⅞; I.X.L., ⅞ to 1; Flagstaff, 2¾ to 3; Prontino and Bolivia, 1¼ to 2; Javali, 5-16ths to 7-16ths; Kapanga, 2 to 2¼; Last Chance, ½ to ¾; Malpaso, ¼ to ½; Malabar, ½ to ¾; New Pacific, ¼ to ½; New Quebrada, 3¼ to 4; Pestarena, ½ to ¾; Plumas Eureka, 2¼ to 2¾; Rica, ½ to ¾; Richmond Consolidated, 6½ to 6⅝; St. John del Rey, 270 to 280; San Pedro, ⅝ to ⅞; Sierra Buttes, 1½ to 1¾; South Aurora, ¼ to ⅜; Tecoma, ⅜ to ½; United Mexican, 2 to 2½; Oregon (pref.), 4 to 4¼.

COLLIERIES.—The past week has been characterised by extreme dulness on the markets for colliery shares, where but few transactions have taken place. The excitement which has ruled in the foreign stock markets seems to have been shared in by all classes of investors and speculators, who appear to have had few thoughts other than those appertaining to buying or selling those bonds which are likely to be most affected by the impending war. What effect the outbreak of war may have on the coal and iron trades it is difficult to say, but there are many who believe that the state of suspense we have suffered so long continues to be the worst feature of the moment, and that with an actual outbreak of hostilities there will come some revival of trade, at least as regards coal and iron. Even now a flutter makes itself noticeable in the future prospects of the iron trade, the exports for the first quarter of the year, showing a satisfactory increase over those of 1876, while it is gratifying to remark that America and Russia again present themselves among our best customers. We may, therefore, consider there is some ground for believing that those who lay their faith in an augmentation of trade have right on their side, and that at a moment like the present, when prices are so low, there is not only no probability of further depression, but there is prospect of improvement in the value of the shares of all those companies which have been able in any way to hold their own during the last twelve months.

The only transactions we have heard of have been in Cardiff and Swansea and Chapel House shares, both of which are a trifle firmer, the former closing at 1¾ to 2¼, and the latter at 3 to 3¼. The new 15 ft. pit at Chapel House is being pressed on with all speed, and will be completed before many months are past. We notice that the directors still require further subscriptions to the debentures, in order to complete the new works, and considering that when the second pit is finished all plant expenditure will cease, and the company be in a position to make large dividends even on the present price of coal, their appeal to the shareholders should meet with ready response. Bilson and Crump Meadow close at 4½ to 5½; Newport Abercarn, 3 to 4; New Sharlston, 3½ to 4; Thorpe Gawber, 1½ to 2; and Cakemore, 2½ to 3. Alltami close at 5 to 5¼; and Llay Hall, 9¼ to 9¾.

BURRY PORT SMELTING COMPANY.—A meeting of creditors was held yesterday (Friday), when the debts, after allowing for the estimated value of the securities held by the secured and partially secured creditors, appeared to amount to 165,000*l.*, and the estimated assets were 18,000*l.* Great dissatisfaction was expressed, and, after some discussion, a committee of inspection was appointed. Three gentlemen were elected who represented upwards of 100,000*l.* of the general debts, and Mr. P. Watson proposed that four representatives of the mining companies should be added. This was objected to, and Mr. Murchison proposed that the representatives of the two companies that were the largest creditors should be elected. Ultimately Mr. Lavington, of the Van Company, and Mr. Wilson, of the Assheton, were selected. It was resolved to wind up under arrangement and not in bankruptcy. It is intended to make a full investigation of the bankrupts' proceedings, but at present the prospects of the creditors are not satisfactory.

SOUTH DARREN.—The new jiggers work well, and crushing and dressing ore is now resumed. Increased returns will in future be made, and the profits will be larger than ever they have been.

DERWENT.—The Sun vein has at last been discovered in the little limestone in the 70 cross-cut, and particulars are expected in a few days. Some time ago a branch worth 15 cwts. of lead ore per fm. was cut, and seeing that this lode has been very rich in the upper sills, and the other lodes have been the same in the little limestone, a large extent of valuable ore ground will likely be opened here quickly, thus considerably increasing the returns.

*** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence: Waste of Small Coal—Patent Fuel—No. IV.; McKean's Rock Drill (J. Currie Gregory); Mining in Newfoundland (T. A. Readwin); the Tharsis Company—the Dividend; California Mines—Comstock Lode; Australian Gold Companies; Water wheels; England, and her Home Industries (R. Tredinnick); Pateley Bridge Mine; Prince of Wales Mine; Mining in Cardiganshire—Monydd Gorddu (J. Jones); Cardiganshire Mines, A.D. 1877—No. XII. (A. Francis); Mining Leases; Gunnislake (Clittters) Mine; South Condurrow and West Godolphin Mines; Bedford United Mines; Capt. Tregay, and Pedn an-drea Mines; (W. Tregay); Roman Gravels Mining Company; New Consols Silver and Arsenic Works (H. L. Simmons); New Consols Mine (T. J. Barnard); Gorsedd and Merllyn Mine (A. W. Thomas); Pneumatic Concentrator (B. W. Hart); The Wild Duck, or Sportsman's Arms—Motor Engines—Foreign Mining and Metallurgy—Morfa Ddu, or Parys Mountain—Registration of New Companies—the Scotch Mining Share Market; Exchequer (Gold and Silver) Mining Company—Almada and Tirito—Foreign Mines—Patent Matters—Meetings of Fuller's Reef and South Condurrow Companies, &c.

Notices to Correspondents.

*** Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be *filed* on receipt: it then forms an accumulating useful work of reference.

SIR,—Could you favour me with the address of Mr. B. W. Hart, who has a letter in last week's Journal about a machine (pneumatic concentrator) for separating silica from iron ore?—INQUIRER. [Mr. B. W. Hart, 1, Garway road, W.]

BAMPFYLDE.—Can any reader favour me with some information as to what the Bampfylde Mining Company is doing, or what its prospects are? Some time since I invested somewhat largely in the shares of this company, and for two years or so I have been anxiously looking out for a dividend of some sort, but nothing turns up. I should, therefore, be much obliged if someone "who is in the know" would kindly enlighten—AN ANXIOUS SHAREHOLDER: Birmingham, April 17.

CONCORDIA COPPER COMPANY.—Will any reader oblige by giving some particulars respecting this company? What is the value of the shares?—R.

FINANCIAL AGENT—"T. W."—It will be necessary for you to send the date of the advertisement to which you refer. No advertisement of the kind mentioned has appeared for at least two years, and it would now be impossible to ascertain any particulars concerning it. "T. W." can have his letter upon application.

IMPORTANT NOTICE—REDUCTION OF POSTAGE ON THE "MINING JOURNAL."—In consequence of the new POSTAL CONVENTION, which came into operation on July 1, the postage of the *Mining Journal* to many countries will be reduced to one fourth. Henceforth the subscription will be 1*l.* 10*s.* 4*d.* per annum (39 frs.), postage included, for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxemburg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Servia, Sweden, Switzerland, United States, Malta' Turkey), Morocco, Tunis, and the Canary Islands. Spain 1*l.* 19*s.* (50 frs.)

Received—"A. R. C." (New York)—"G. M." (Handsworth)—"T. C." (Dublin)—"A. S. R."—"M. M." (Bath): Letter forwarded.—"Shareholder" (Richmond Consolidated) should address his letter to Mr. Hall, the secretary of the company.—"Shareholder" (New Consols: We could not publish the letter without the writer's name being appended.—"Civil Engineer" (Leith): We shall be glad to have all particulars and the illustration shall appear.—"Shareholder" (Van Consols) can obtain the information on application at the office.—"N. R."—"M.G."

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, APRIL 21, 1877.

THE PRODUCE OF OUR BLAST-FURNACES.

When looking over the quantities of iron produced in the furnaces throughout the kingdom one cannot fail to be struck with the great difference there is in the turn out per furnace in one district as compared with another. It might be considered that this was caused by the variation in the quality of the ores. But such is really not the case with respect to the ordinary carbonates and argillaceous ores that are worked in so many parts of the country. In those localities where fine hematite only is put into the furnaces the output is, of course, the largest; but in the Cleveland district, where the ore is of the ordinary argillaceous description, such as is that found in the lias-ic system in so many places, the production is much greater than in any other, even where the stone is far superior in quality. It is, therefore, evident that there is a good deal in the results in the construction of the furnaces, and it may be in the apportioning of the fluxes. Undoubtedly our North of England ironmasters have paid great attention to the means of producing a good quality pig at a minimum cost, and they have certainly been successful, for during the last few years they have greatly reduced the quantity of fuel required for making a ton of pig-iron. In several other districts efforts have been made in the same direction, but not with anything like the same success. It is, however, gratifying to find that since 1870, and the period when coal was so very high in price, more attention has been paid to increase the output of the furnaces in most of our iron-making districts, and with the most favourable results, as will be seen from the following returns, showing the production of pig-iron per furnace for 1870 and 1875:—

	In blast. Furnaces—1870.	Output per furnace.	In blast. Furnaces—1875.	Output per furnace.
Northumberland	3	...Tons 11,207	2	...Tons 11,435
Durham	50	13,539	53	14,834
Cleveland	67	13,686	73	16 986
West Riding	22	3 532	38	7,030
Derbyshire	30	5,992	38	7,184
Lancashire	27	15.656	31	18,025
Cumberland	24	10.632	32	15.191
Shropshire	22	5,104	20	6 050
North Staffordshire	36	8,472	26	9,669
South Staffordshire	114	5,162	76	6,192
Northamptonshire	10	4.316	12	6 724
Lincolnshire	4	7,922	14	7,977
Gloucestershire	—	—	6	4,515
Wilts and Somerset	6	7,800	3	10,910
North Wales	7	7,115	7	7,871
South Wales	188	9.066	7	9,625
Scotland	123	9.804	119	8 992

With regard to Scotland, it may be said that some of the districts produce a great deal more than others—thus, Ayrshire gives, for 1875, per furnace 10 885 tons; Lanarkshire, 8667 tons; Fifeshire and Linlithgowshire, 6256 tons; whilst Stirling and Argyle give only 3326 tons.

Amongst the most valuable of the ores are those found in the granitic schists, or transition rocks, where is the white carbonate, or spathose, and the hydrated peroxides (red and brown hematites). The former is found principally in Devon and Cornwall, and is the steel stone of the Austrian works in Styria, and is also worked in Spain and Germany. However, the quantity raised in this country is comparatively trifling, and is sent from the counties named to South Wales, where it and hematite, we believe, are mixed with the local argillaceous carbonate. On referring to the figures it will be seen that the largest output is from the furnaces of Lancashire, where the valuable red hematite is smelted. It is worked in the limestone deposits of Ulverstone, and is also found in Cumberland, and at Long Ashton, in Somersetshire, and Frampton Cottrell, in Gloucestershire, as well as in other districts. It varies a good deal, at some places giving as much as from 63 to nearly 70 per cent of metallic ore. After Lancashire in hematites we have Cumberland, and then comes the Cleveland district, where the ordinary argillaceous carbonate ore is raised and smelted, the value probably not being more than a third of that of the hematites. Yet with such a disadvantage the knowledge and constant experiments made by the ironmasters of the North has placed them in a position to produce nearly as much iron from their furnaces as is obtained by those in Lancashire, and even more than those in Cumberland. This should, we think, stimulate those who are working similar ores, but with little more than half the results, to benefit by what has been accomplished in the North of England, as by doing so they will be in a position to compete with all others, for cheap iron is now the question amongst consumers. The West Riding looks very different to the North Riding, but there is no reason why it should be so, for the ores raised are good, whilst the iron, such as the Low Moor, Farnley, Bowling, Elsecar, and others, has a very high reputation both at home and abroad. In Durham some spathose, hematite, and the ordinary argillaceous carbonate are smelted, so that with such practical men as Mr. I. LOTHIAN BELL, BOLCKOW and VAUGHAN, and the chiefs of the Ferryhill Company, iron of the finest quality is turned out in very large quantities.

In Somersetshire the furnaces show to advantage, although there are few in number of them, the ore smelted being the spathose, hematite, and the argillaceous carbonate. The carbonate of the coal measures has been extensively worked in Staffordshire, as it is also in many other districts, and in some cases it gives upwards of 42 per cent. of peroxide of iron and 7 per cent. of protoxide of manganese. These ores occur in bands or layers in the shales separating the seams of coal, and can sometimes be worked with the latter. Of the most recently discovered of our ironstone fields—Northamptonshire and Lincolnshire—the former has made some progress during the last three or four years, but certainly not to the extent that might have been expected in a county far removed from where it receives its supplies of smelting fuel. It now raises close upon a million and a quarter tons of ironstone, standing next to Cleveland, yet the output per furnace has only been 6724 tons, whilst in some districts the stone yields more than 40 per cent. of iron. It has been recently suggested by practical men that the ores of Northamptonshire could be so selected as to produce a quality of iron not much inferior to that of the hematite, for some of it partakes of the characteristics of that stone. In Lincolnshire there has not been any material change, but it is quite probable that when all the furnaces in the Frodingham district are in blast the county will show to much greater advantage.

With very few exceptions it will be seen from the figures given above that there has been a marked increase in the production of the furnaces in almost every part of the kingdom, in some instances in four years equal to 50 per cent. or more. Those interested in the iron trade will also see the districts that have made the least progress, whilst the ironmasters in the latter it is to be hoped will make up for the time lost by taking steps for increasing the output of their furnaces, as by so doing they cannot fail to save largely not only in fuel but in other ways as well, and at the same time be better prepared to encounter the increased foreign competition with which they are threatened.

SINKING TO THE GREENSAND IN LONDON.

A most interesting discovery, which in more ways than one may be of great importance to the inhabitants of the Metropolis, was made at the brewery of Messrs. MEUX and Co., on Saturday. Sinking a well to the depth of 1004 ft. the men met with a spring of good water in the upper greensand, which belongs to the upper cretaceous rock, resting upon the fault, and below the true chalk. In some places, including Wiltshire, the beds are grey, green, and rusty in their character, and being close to the chalk, afford a ready filter for the collected water in the thick beds of chalk above. The water being again retained by the fault beneath from the retentive beds of which the water makes its escape in the form of springs, thus giving rise to the numerous brooks and rivulets which flow from the cretaceous escarpments, to which most of the well sinkings are driven. It would thus appear that a supply of good water can be obtained by going down to the greensand, a matter of very great moment to the inhabitants of London, and of other places as well. But there are other matters in connection with the greensand that are also of some importance apart from the water supply. Had the sinkers gone down about 100 ft. lower they would have passed through the gault into the lower greensand, the colour being due to the quantity of chloritous silicate of iron in the general mass. The beds are also yellowish and red owing to the presence of the oxides of iron. Throughout the whole range the bed presents the appearance of a highly ferruginous sand, with much oxide of iron, and at Seend, near Devizes, very extensive open mining operations have been carried on raising the ironstone from an isolated outlier.

In the South-East of England the ores of the greensand were extensively worked, for the Wealden deposits were in early times the source of the principal iron manufactures of Sussex, where at one time there were ten blast-furnaces in full operation. The Weald clay below the greensand, from 150 to 200 ft. thick, has also been extensively worked for its argillaceous ironstone, and the iron made from it and the sands furnished most of the ironwork used in the erection of St. Paul's, some of the old London Company's halls, and other buildings in the metropolis. The greensand is found around the whole Wealden district in Kent, Surrey, and Sussex, and is found in the Isle of Wight, and passes from Cambridgeshire into Wiltshire, so that it occupies a vast area. Seeing that ironstone must occupy a large space throughout London and several counties, it is within the scope of probability that it may be again extensively worked, and smelted where raised. This would be still more likely should the views of Mr. GODWIN-AUSTEN with respect to the probable extension of the coal formation beneath the cretaceous rocks lying between the coast opposite Calais and the Somersetshire coal be ultimately confirmed. That gentleman considers that the coal measures which tail out under the chalk of Thérouanne probably set in again near Calais, thence are prolonged in the line of the Thames valley, parallel with the North Downs, and continue under the valley of the Kennett into the Bath and Bristol coal area.

AUSTRALIA, AND THE IRON TRADE.

The advices which have come to hand this month from the great Australasian group of colonies are eminently encouraging. Revenue rolls freely into the various colonial treasuries, and railway construction is proceeding steadily. It could not well be otherwise since the net return realised by the various Australian Government railways is not at all to be despised. In New South Wales, for instance, the Government is obtaining very nearly 4½ per cent. per annum upon the capital which it has embarked in the railways which it has made, while, of course, the railways confer very great indirect advantages upon the colony. The experience of New South Wales has been practically repeated in Victoria and South Australia. In Queensland also the net revenue of the Government lines has been sensibly increasing of late. That the prosperity of the Australias is not by any means a matter of indifference to the home iron trade is illustrated by the single fact that the South Australian Government, through its Assistant Agent General in London, has accepted tenders for the supply of 25,600 tons of iron and steel rails to be delivered in London by English makers as required. There can, we fancy, be little doubt that for the next year or two, at any rate, our railway iron will be in good demand, not only in South Australia but also in the other members of the Australasian group of settlements. In dull times like the present this is a hopeful and satisfactory circumstance.

The great secret of the remarkable prosperity of the Australias is the extraordinary development of their wool production. In the whole of 1857 the various Australian colonies forwarded 49,209,655 lbs. of wool to Great Britain; in 1867 the corresponding exports had risen to 133 103,176 lbs. It might be thought that the immense advance established between 1857 and 1867 would scarcely have been continued; but in the first three months alone of this year the deliveries have amounted to no less than 115,628,448 lbs. In other words, the exports for the first quarter of 1877 were more than double the exports for the whole of 1857. Indeed, in the single month of March, 1877, we received no less than 45,501,535 lbs. of wool from Australasia, or very nearly as much as the receipts from the same source for the whole of 1857. It is the profit on the vast wool production of Australasia which has served to build up the capital of Australasia. Gold mining and other industries have no doubt assisted the general result; but after all it is wool, wool and always wool, which is the secret, the source, and the mainstay of Australasian prosperity. The constant growth of the Australian wool trade seems to indicate that there are further triumphs yet in store for it, and no doubt as more wealth and more capital accumulate in Australasia we shall see the exports of Australasian wool attain even a still greater importance than that which they have yet acquired.

Everything points to a great and prosperous future as in store for the Australias. It must be remembered that their resources are now well understood in the Old World, so that both the capitalists and the working classes of Europe are alive to their advantages. Then the means of communication existing between Great Britain and her Antipodean dependencies are much more rapid than they were half-a-century since, when M'ARTHUR first brought to light the marvels of the Merino, and laid the foundations of the now immense pastoral interest of Australasia. Telegraphic communication now enables a few words to be interchanged between London and Sydney or Adelaide in the course of a single day; with the help of the Pacific Railroad a journey can now be made from England to Victoria or New South Wales in about two months; and the leading journals of Sydney or Melbourne are beginning to be almost as well known in the Mother Country as the most prominent papers of London or Liverpool. All this points to a large flow of both capital and labour from the Old World to the Antipodes during the remaining years of the century, and great results may be expected to ensue in consequence. But, then, the contingency presents itself whether as the Australias grow more populous they will not also become more independent of the home iron trade.

NEGLECTED ENTERPRISE.—The disturbed state of the political atmosphere, together with the general depression which characterises all departments of trade, have, as a matter of course, prevented any activity in joint stock enterprise, and all vitality seems entirely stamped out of the movement. It is rather surprising that capitalists and investors should prefer to keep their money upon unremunerative terms, or even accept risks in other speculative ventures, while they ignore altogether undertakings with the word "limited" after their titles. While we readily admit that there is some ground for the indifference shown towards joint stock enterprise, we would point out also that it is possible to err on the right side. Commercial history teaches us that investors possess the imitative faculty in a marked degree, and while they readily swallowed every conceivable bait a few years since—although the hook was plainly seen had they troubled themselves to look—they now, by ignoring every new project, and classing them all as utterly bad, show a folly almost as great as their previous weakness. The stories heard of accumulated capital remaining in abeyance at a ridiculous interest are so numerous, that one can readily believe the scare is intense. It would be idle to point to a revival of business generally as near with war impending; but it may be assumed that when there is an improvement investors will be anxious to make up for lost time by giving their attention to the development of home enterprise.

MINE MANAGERS' CERTIFICATES.—A meeting of the board of examiners for the eastern mining district of Scotland was held in the Museum of Science and Art, Edinburgh, on Friday, under the presidency of Mr. Ralph Moore, H.M. Inspector of Mines. After hearing the examiners' report on last examination, it was resolved to recommend that the Home Secretary appoint the next examination of mine managers for certificates of competency be held in Edinburgh towards the end of May. The regulations remain the same as at the last examination.

GOLD MINING IN THE ARGENTINE REPUBLIC.—Mr. Joseph Vivian (son of Captain Joseph Vivian, formerly manager of Great Wheal Fortune and other mines in Cornwall) has recently returned from the Gualilan Gold Mines, San Juan, Argentine Republic, where he has been for over five years, and reports most favourably of these mines. It appears that as soon as the new Oxland calciner and other machinery is erected the mines will pay handsome profits; in fact, he has not the least hesitation in saying they will be the richest ever discovered in South America. They are now being energetically worked by the Argentine Company (Limited)—an English Association. A few years since, when Capt. Joseph Vivian started these mines, it was only with a small band, who were obliged to encamp; now it is a little colony itself, containing over 600 inhabitants—Europeans and natives. The engine houses, laboratory, and other buildings are substantially built. The principal part of the machinery was supplied by Messrs. Harvey and Co., of Hayle, Cornwall, and has given the greatest satisfaction. It is gratifying to learn that such pluck has met its due reward, and there is every probability of the shareholders soon receiving enormous and continuous profits.

COAL AND IRON IN THE UNITED STATES.—The market for steel rails has been quiet at Philadelphia, but at the same time it has been fairly steady, prices remaining without change. Some companies which have large orders on hand have shown no great anxiety to do business, and prices have been supported with firmness; but this has, of course, not been the case with other companies not so well employed, and these latter have shown a readiness to accept slightly lower terms. Quotations have ruled at $48 to $49 per ton currency at the mills for ordinary steel rails; and at $52½ to $55 per ton currency at the mills for light steel rails. Business in iron rails has continued dull, and there has been but few sales to report. Orders are in the Philadelphia market for several thousand tons, but the conditions of payment have yet to be arranged. The manufactured iron trade appears to be in an unsettled state in Philadelphia, the future being attended with a good many uncertainties. The pig iron trade has ruled quiet and dull at Philadelphia, and lower quotations must be reported in some instances. The total production of anthracite coal in Pennsylvania to March 24 this year amounted to 3,548,306 tons, as compared with 2,444,178 tons in the corresponding period of 1876, showing an increase of 1,104,128 tons this year. The aggregate production of bituminous coal in Pennsylvania to March 24 this year was 560,754 tons, against 610,147 tons in the corresponding period of 1876, showing a decrease of 49,393 tons this year.

REPORT FROM CORNWALL.

April 19.—Much movement cannot be expected for the better in mining matters while the trade of the country continues so depressed, and while matters are so threatening—indeed, worse than threatening—abroad. With panics on the Stock Exchange, and the air filled with the sound of the preparations for war, it would require a superabundance of vitality in any pursuit connected with business to make it at all lively. The most that can be expected of any ordinary form of commercial enterprise just now is that it shall not retrograde, and mining in Cornwall can at least claim to be in that position. It is, indeed, commonly held that in war time metal mining, and specially tin and lead mining, flourish. Why the lead trade should be encouraged by such conflict it is easy to understand, but why war should to any serious extent affect tin for the better is not quite so easy to see. In busy times war checks business, and any extra demand for metals for which it may call is counterbalanced by the reduction which it causes in the consumption in matters of ordinary trade; but when matters are as they are any extra demand, from whatever source arising, counts for far more than in ordinary times, and war, therefore, for the time, may help us somewhat. But evanescent is the activity and prosperity that has such a basis; and, apart from the misery and horror which make war so terrible, far rather would we see a revival here spring from a revival in trade generally—even if it had to be a little longer delayed—than from an appeal to arms. The benefit would be far more substantial and more enduring.

Whatever may be thought of Mr. Rule's dogged headlong fashion of rushing at what he considers to be a grievance, and hitting out hard hard "without fear, favour, or affection,"—and we are quite disposed to overlook the mistakes into which he sometimes falls for the sake of the good he does in waking people up—he has had nothing but praise for the happy way in which he touched off the "owner's account" man in his paper at the Mining Institute. You can recognise the truth of the description at a glance, and as our reference last week to this part of Mr. Rule's paper was but slight it may not be amiss to quote the passage now. Mr. Rule commenced by asking:—

"Who is there that ever entered a mine that cannot recognise an 'owner's account man' at first sight? He comes from a species that has never been known to burst a blood vessel, or to overheat the blood. A drop of sweet on his brow is as rare as snow in summer, because even the pores of his skin are 'owner's account,' and refuse to act in any other than the ordinary manner. The chances are that he has been on 'owner's account' all his life; and, if I mistake not, he was born on 'owner's account.' He always has the same slovenly step and action, and I doubt very much if he was sure that he would be overtaken by an avalanche whether he would move one step the faster! In some cases he may have a horse with him, but the horse is equally as much 'owner's account' as his master; and, for that part, even the same traits are discernible in the cart. The 'owner's account' man and horse are generally engaged at so much per day (about 5*s.* to carry sand or gravel from one part of the mine to the other, and another man of the same species) is engaged to fill the cart at something like 2*s.* or 2*s.* 3*d.* a day. Now, if anyone was to enter the mine during the process of this cart being filled he would most assuredly find 'owner's account' man and horse leaning against each other, presumably for mutual support, and as soon as 'owner's account' filler says the load is ready the man removes clumsily away from the horse and mutters a faint 'gee up!' 'Owner's account' horse—not certain whether he is told to move on or not—merely turns his head to the driver; who, too lazy to open his lips the second time, simply nods his head, which 'owner's account' horse seems to understand, and away they start at the rate of about a mile an hour

as soon as the horse and cart have left 'owner's account' filler sticks his shovel into the pile of sand and his hands into his pockets, and tumbles either down on the pile or against the hedge to await the return of his comrades. This, gentlemen, is a fair specimen of 'owner's account' work; and, though it cannot be got rid of altogether, I would strongly urge all agents to curtail it as much as possible. If there is a quantity of rubbish of any sort to be removed why not set it at so much per ton or at per load?"

Why not, indeed? It is often done. Why is not the practice general?

The West Seaton strike did not last long. The girls came to their masters, and went to their work. Lucky for them that they did, for there would have been no difficulty in speedily filling their places.

We hear that one of our young mining captains who, in addition to his thorough practical knowledge, has considerable scientific attainments, is likely to pay a visit in the interests of an eminent English firm to some of our colonial tin fields. The only wonder is that something of this sort has not been done before. The information will be worth all the trouble and expense, for it will be trustworthy.

There is one point in connection with the next exhibition of the Royal Cornwall Polytechnic Society to which it is desirable that special attention should be directed. Of late years considerable difficulty has been occasioned by the late period at which many articles for exhibition have been forwarded; and it has in some cases been impossible to bring everything before the judges in the manner desired. For the future, therefore, the rule as to reception will be strictly enforced; and no articles will be admitted to competition unless they reach Falmouth a week before the opening of the exhibition—that is, by Aug. 21.

TRADE OF THE TYNE AND WEAR.

April 18.—The expected war in the East has had the effect of causing a great demand for iron steamers here to load corn at Odessa, &c., and freights have, in some cases, been doubled in consequence. There is, therefore, much activity in getting steamers completed for sea. Up to the present time the state of matters in the East has had a most injurious effect on trade here. The opening of the Baltic is always a busy time, but the late uncertainty of war or peace has tended to a great extent a paralysing effect on the Baltic and other trades. There is a rather more active demand for steam coal during the past few days, but of course no general improvement can be reported in the state of the Coal Trade in Northumberland, and the questions now pending between the coalmasters and the miners are so grave as to cause the most serious apprehensions. The demand for a reduction of working prices can, no doubt, be settled—at least it is probable that it may be settled in the usual mode—by arbitration, but the proposal to discontinue the practice of supplying free houses and coal to the workmen is quite a different matter. It has been the custom from time immemorial to supply free houses and coal to the miners in Northumberland and Durham, and the proposed change will be resisted to the utmost, although a money compensation may be offered. The reduction of 7½ per cent. in the case of the Durham miners has been carried out, but the selling price of coal is so very low that there appears to be no prospect yet of any rest either for the men or the masters. At two of the large works at the east of Durham—Houghton and Philadelphia—the men have got notice to leave, the object being to get further reduction in prices, or otherwise to stop the pits. The Durham engine-men have agreed to accept a reduction of 10 per cent., the rate then remaining to be the minimum rate, and wages afterwards to be regulated by a sliding scale, on the same principle and data as that already fixed upon in the case of the miners. The mechanics at the Durham collieries have refused to accept the proposed reduction, and as no agreement could be arrived at by the committee, the matter has been referred to arbitration.

The iron shipbuilding trade on the Tyne is gradually improving; this is very apparent at Jarrow, where the works have been badly employed for some time. At the commencement of the year a large number of houses were empty here, but they are gradually being filled, although a number yet are empty. About 4200 hands are employed at Palmer's Iron and Shipbuilding Works, and it is expected an improved balance-sheet will be shown at the end of the financial year in June next, as compared with that of late years. The Iron Trade generally continues much depressed, and stocks of pig-iron are accumulating. It is remarkable that the stocks of pig-iron in Cleveland are increasing, and those in Scotland have been getting lower in late years. Of course Cleveland has now shot far ahead of every other industrial centre in the magnitude and importance of its pig iron trade, but it was not until recently that we could compete with Scotland in the extent of our accumulated stocks of pig-iron. Some years ago the large warrant stores of Messrs. Connell, at Glasgow, contained 500,000 to 600,000 tons of pig-iron, and the operation carried on in warrants, whereby those stocks were bought and sold without being touched by the buyer or seller, were sufficiently large and important to regulate the price of pig-iron all over the world. But this aspect of affairs has been changed. Cleveland with the 220,000 tons of pig-iron in stock is far ahead of Glasgow with only 129,000 tons, and the stocks on the Teesside are becoming as much an indication of the general tendency of the trade as the prices at which warrants were quoted on 'Change at Glasgow a few years ago. The returns which have just been made up show that the output of ironstone in Cleveland during 1876 reached the unprecedently large figure of 6,564,000 tons. The output of ironstone in 1875 was 6,085,541 tons, so that the production for 1876 shows an increase of 478,459 tons. In 1871 the production of Cleveland ore was 4,581,901 tons, and it thus appears that there has been an increase within six years of nearly 2,000,000 tons. This development is larger than that of any period of corresponding duration in the history of the trade.

The exhibition of gas apparatus at South Shields has been extremely successful. So great was the attendance of visitors that instead of closing on Wednesday, as intended, it was found necessary to keep it open until Friday evening. On Wednesday Mr. W. J. Warner, the engineer of the South Shields Gas Company, read a paper "On the Application of Gas to Cooking and Heating Purposes." The judges—Messrs. Bennett and Pattinson—also gave their award in Class 7 (the novel application of gas to purposes of general utility) in favour of Messrs. C. Ezaid and Co., of Bradford, who exhibited a variety of apparatus for use in the laundry. When we remember that it is only 78 years since Murdoch introduced gas lighting at the works of Boulton and Watt, and that it did not come into general use until many years afterwards, it is surprising to reflect upon the uses and applications for which it has become indispensable at the present day. Gas engineering is a distinct branch, and one that is daily becoming of increased importance.

The Bill of the Tyne Commissioners continue to attract much attention, and it was considered that the promoters made out a good case; however, the opposition is very serious, the most important objections coming from the coal and iron masters, who ship their goods entirely on the south side of the river, and they consider, with some reason, that they ought not to be called upon to pay towards the cost of the Coble Dean Dock, as it would not be used by them. That the dock will be required for the general trade of the river there is not the smallest doubt. Another dock will also be required for the shipment of coals on the south side of the river, and the best site for the dock is at Dunston, two miles west of the Tyne Swing Bridge. The shipment of coals at this point from West Durham would relieve the owners by reducing the railway carriage about 12 miles, and it would also relieve the import and export traffic at Tyne Dock, which is now getting much crowded, and in busy times most inconveniently so.

The twin ship Express, sister to the Castalia, was successfully launched on Saturday from the shipbuilding yard of Messrs. A. Leslie and Co., Hebburn-on-Tyne. This vessel has been built by Messrs Leslie for the English Channel Steamship Company, and the Tyne firm have designed it and had the sole control of its erection. The Castalia secured the comfort of its passengers by comparative immunity from sea sickness, but it failed to give the requisite speed. The Express has been designed not only to give the same comfort to the passengers, but to solve the problem in naval architecture of the greatest power for the least draught of water. In the workmanship of the Express the utmost care has been exercised throughout to secure all the purposes for which the vessel has been specially constructed, and the hull shows that whilst the maximum of strength has been kept in view the minimum of weight has been tenaciously adhered to. After the launch it was found that the draught was exactly what was anticipated. The entire draught will be 7 ft., to suit Calais Harbour. The Express consists of two complete hulls, joined together with what has been described as a "railway tunnel." Mrs. Leslie performed the ceremony of christening in the presence of a large assembly of spectators, including Mrs. Cook, Jesmond; the Misses Aitchison, Wallsend; Mr. and Mrs. Hawthorn, Newcastle; Mr. Black; Mr. L. Mills, principal surveyor to the Board of Trade; Messrs. Ramsey, Taylor, Manuel, and Co.; Messrs. Black, Hawthorn, and Co., Gateshead, will supply the engines, each vessel being supplied with a complete and independent pair, having cylinders 63 in. in diameter and 73-inch stroke, which will make not less than 36 revolutions per minute. The paddle-wheel will be 'tween ships, which will be driven with engines representing the 5000-horse power. The boilers are the largest and most powerful of the kind ever constructed.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

April 19.—Recent orders have contributed to afford more work at the leading mills and forges than was in hand before the Quarterly Meetings, but there is reason to fear that the specifications will soon have run out, since they are not for so large quantities as are usually distributed at this time of the year. The pig-making firms keep in no less apparent activity than they were, still the output is within the capacity of even the furnaces blowing, and the demand keeps under the make. Best pigs hold their own in quotations, but the common kinds are slightly easier in some brands than they were a fortnight back. High-class pigs are upheld by the prices of coal, or, rather, by the inability of colliery owners to get their coal without sustaining a loss so long as the demand is so quiet as at present. Furnace coal is still quoted at 11s. minimum for the Earl of Dudley's quality, standard weight, but less money is being taken by other firms, and it is no secret that even his lordship is a heavy loser by the trade he is doing at the figure quoted.

A few colliery firms are making arrangements with their men which will take off a little of the pressure, notwithstanding that it seems to be the determination of the men to work only eight hours per day.

Messrs. Groucutt and Sons, who are colliery owners and blast-furnace and mill-forge proprietors at Bilston, have given notice to all the workmen employed in and about their Broadwater furnaces that they intend to reduce wages 10 per cent. They have likewise given notice to shut down their pits.

The Dudley nailmasters have resolved to require a similar drop in the wages of their operatives, and 15 per cent. is spoken of as the drop likely to be required by the nailmasters about Old Hill. Under these circumstances the chances of the Bromsgrove nailers preventing the 10 per cent. drop, against which they have been on strike for the past two months, are very few.

Manifest dulness characterises the local share market, with a tendency to droop in values. Though 2*l.* discount is still the quotation of holders of Hamstead Colliery shares, yet there has been a sale at 3*l.* These are 20*l.* shares, with 12*l.* paid. Cannock and Huntingtons, upon which 6*l.* has been paid, are now upon offer at 2*l.* 10*s.* discount. Chillington Iron are plentiful at 4*l.*, without sales, and John Bagnalls are offered at 3*l.* 12*s.* 6*d.* for the 10*l.* paid-up shares. For the Pelsall Coal and Iron shares 20*l.*, with 15*l.* paid; there are buyers at 11*l.* dis., but no sellers. The Master of the Rolls has made his order for the compulsory winding-up of the Darlaston Steel and Iron Company.

To receive a deputation of colliers a meeting of the committee of the Coalmasters' Association is to be held to-morrow, at Dudley.

The North Staffordshire Iron and Coal trades have not been much improved by the quarterly meetings. The most business is being done in bars, but at very low prices in competition with Middlesborough. Yet the bar-mills cannot be kept on at best more than from six to eight turns per week. Longer hours or lower wages are as great a necessity at the pits in North Staffordshire as in South Stafford-hire, and the employers desire to bring about the change, but Mr. Macdonald, M.P., and others at a meeting, on Monday night, recommended the men to accept neither lower wages nor work more hours, but, on the contrary, to limit the output.

The Wolverhampton Chronicle says—"This district ought to be proud of the announcement we made last week—of the appointment by the Government of Mr. Fred. North, F.G.S., of Dudley, to go out to South Africa to inspect and report officially upon the coal fields of Cape Colony, Cape of Good Hope. He enjoys a high reputation in this county as a mining engineer of sound, practical, and scientific knowledge; and, doubtless, his experience will enable him to offer suggestions as to the best method of developing the deposits, which will be of value in facilitating the supply of cheap fuel in the colony. Mr. North is expected to be away until the end of the present year. In a similar manner Mr. Walter Ness was chosen from this district to go out to India by the Government to look after the coal and iron works there."

A new pattern of street lamp (one of Bartlett's "Boulevard lamps") is now being tried in Birmingham. In appearance it can hardly be said to be much improvement upon some of the ordinary lamps, but it is so arranged as to get rid of the shadow immediately underneath. The glass is a solid globe, surrounded near the upper part with a white enamelled brim, which intercepts some of the ascending light and reflects it down upon the pavement. Above this brim is a band of ground glass, upon which may be painted in bold letters the name of the street. The new lamp is easily kept clean, and at New York, where it has been extensively adopted, has given the greatest satisfaction. The agents in Birmingham are Messrs. W. Blews and Sons.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

April 19.—There is nothing like activity to be found in the lead mining districts of Derbyshire, and the output of ore appears to be on the decrease more than otherwise. No fresh capital is being introduced, whilst many mines that a few years ago were looking well are now entirely closed. What business is being done is principally in the hands of a few private and wealthy firms, the few companies there are not doing much, whilst the shares of the Eyam, Mill Dam, and Peak are quoted at mere nominal sums in comparison with the paid-up capital. The ironstone raised in Derbyshire, where there are some 12 or 13 mines only, is of the ordinary argillaceous character, such as is found in connection with the coal measures, and is now being worked to a moderate extent by the Staveley Company, as well as at Butterley, Riddings, Sheepbridge, and a few other places. This clay ironstone is much improved by the silicious ores of Northamptonshire, and large quantities of the latter are now being imported to the leading works. This pig has been in fair request for some time, so the output of the furnaces has been well maintained. Considering the time of year, there is a very fair business being done with London in house coals, but the competition for the trade is still keen, and there is now every probability that prices will shortly come down with the decreased consumption that must necessarily take place when the fine weather sets in. For other descriptions of coal there is no alteration.

Quietness still prevails in many branches of the Sheffield trade, without much prospect of their improving. Some of the cutlery establishments are more fully employed, a few orders having come from America and the colonies. The heavy plate mills have been going along steadily, whilst there has been a fair business done in ship and boiler plates. Steel plates are increasing in demand for several purposes. Boilers are now made of them, and owing to their greater durability and non-liability to corrosion, are likely to be largely adopted by our manufacturers. For ships they are also being used, and some of the Government vessels recently launched have steel sheets with wood, and the resisting power is said to be greater than that of iron. Bessemer rails keep several establishments busy, whilst others are just kept fully going. Ordinary iron rails do not appear to be in much request, and the same may be said with respect to other descriptions of railway material, except, perhaps, springs. Steel tires are being rather largely produced, but Belgian makers are running our manufacturers hard, so that the profits realised are very small. In cast-steel goods business is but moderate, but the malleable works appear to be doing very well.

In the South Yorkshire district the iron makers have been working as usual, but late prices of pig are rather hard to maintain, owing to the competition there is with the Cleveland iron. The foundries are doing a very fair business in heavy and other castings, as well as in pipes, stoves, ranges, grates, screens for collieries, corf-wheels, and air-compressing machinery. Considering the general state of the trade most of the collieries have been working very well, many of them doing five days a-week. What steam coal is now stacked it is expected will shortly be taken away, seeing that the requirements of Russia will be larger than usual when she goes to war, which may now be expected any day.

Owing to the widening of the Silkstone shaft of the Stafford Main Colliery, near Barnsley, the notices of 300 men and boys expired to-day, and their services will not be required for at least six months.

On Monday last at Rotherham a number of Unionist miners lately employed at the Denaby Main Colliery were fined in sums up to 10*l.* for assaulting non-Unionists who had taken their places.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

April 19.—The horizon certainly does not look so gloomy as it has done of late, and so far as the iron trade is concerned there are certainly a few more orders in hand. Those works which have not been entirely stopped continue to evince more activity. The principal complaint now is as to the low prices which are obtainable for finished iron, especially rails. Our colonies—Australia and New South Wales—are just now fair customers for rails, and there is a moderately good demand for Denmark and Sweden, as well as Brazil. There is an improvement also observable in the foreign demand for bars, and a few parcels have been sent away during the week, notably one to the East. At the steel works business is fairly good, and there are not wanting indications of the fact that an improvement is about to take place in the tin-plate trade, prices at any rate are firmer. As might naturally be expected, there has been a large increase in shipments of coal, arising no doubt from the news from the East. As yet, however, no appreciable alteration in prices has occurred. As a rule the collieries are a little better employed this week. For steam coals the demand is well maintained, but for house qualities the enquiry is but moderate. Patent fuel is in somewhat better request. It will be remembered last week that I stated notices had been given by the Nant-y-Glo and Blaina Company to some 2000 of their men to terminate contracts. As anticipated, it has turned out that the object of the notices was to effect a reduction in wages, a drop of 10 per cent. being insisted upon. The men appear indisposed to accept this reduction, and some of them have already stopped working.

The exports of iron for last month show a very large increase, compared with those of the previous months. The figures are—Cardiff, 4097 against 310 tons; Newport, 10,793 against 5968 tons; and Swansea, 963 against 631 tons. The principal shipments were made to the following places:—Cape Town, 464 tons rail; Gothenburg, 750; Kurrachee, 3511; Lisbon, 423; Malaga, 1019; Madras, 1800; Rio Janeiro, 576; Seville, 540; Valparaiso, 449; Uddewalla, 700 tons rail; Madras, 618 tons bar; Poti, 1282 tons rail; Salonica, 1075 tons bar; Wisby, 850 tons rail. Referring also to the coal shipments for last March, and comparing them with the figures for the corresponding month of last year, it is observed that there is a large increase in every instance. In last month Cardiff cleared foreign 316,635 tons of coal, against 199,504 in March, 1876; Newport, 58,012 against 34,873 tons; Swansea, 54,432 against 34,907 tons; and Llanelly, 5427 against 4891 tons. Coastwise shipments were—Cardiff, 65,885 compared with 61,076 tons; Newport, 73,161 compared with 39,113 tons; Swansea, 24,138 compared with 17,709 tons; and Llanelly, 5427 compared with 4891 tons. Last month also Cardiff sent away 11,010 tons of patent fuel, against 6187 tons in the preceding month; and Swansea, 10,677 against 9794 tons.

The Birchgrove Graigola Steam Coal Collieries in the Swansea Valley are announced to be shortly sold by public auction.

The Swansea Harbour Trust have resolved (providing the Great Western Railway and Midland Railway Companys and the Swansea Corporation consent to abide by previous arrangements for renting certain wharfage) to proceed with the works of a new dock on the Fabian's Bay side of the harbour. The main dock portion of the work, which will be done first, will cost about 229,000*l.* By the bye, notwithstanding the depression in trade, it is noticeable from the returns presented by the superintendent of the harbour to the Swansea Harbour Trust that the total exports, imports, and tonnage compare favourably with those of the previous year. There is an increase in the copper, coal, and patent fuel trades, but a falling off in exports of iron, steel, rails, and castings.

Mr. Crawshay, whose health has much improved, has returned to Cyfartha. At the wish of the veteran ironmaster no public demonstration was made.

An important case affecting the shipment of coal from Cardiff to the Mediterranean ports has been heard in the Queen's Bench Division, High Court of Justice. Difficulties, it appears, have often arisen as to the quantity of coals shipped in vessels. Usually the consignee pays according to the quantity on the bills of lading, contracts now generally bear this clause—"Captain to give bills of lading for quantity put on board ascertained as customary." In the case in point—that of Wilkie *v.* Stevenson—the captain appears to have given bills of lading for more than was actually shipped. The consignee paid for the whole, and the owner of the ship sued him for freight on the quantity delivered. In consequence of this the consignees set up a counter claim against the shipowner for damage in consequence of the captain's mistake. The Court decided in favour of the shipowner on the ground that the consignee was only bound to pay upon the quantity delivered.

At a recent meeting of the South Wales Institution of Engineers, held at Cardiff, a paper was read by Mr. Bassett, M.Inst.C.E., on "The Drainage of the Taff Vale District." By the scheme proposed water-tight culverts for carrying away the sewage water from the various valleys should be constructed. These culverts were proposed to connect at a given point at Treforest, and merge into one main culvert leading to the sea. The cost of the main culvert was estimated at 100,000*l.* The general opinion of the meeting appeared to be that sooner or later a comprehensive scheme of the kind for the benefit of the health of the public must be carried into effect.

A splendid steel man-of-war has recently been launched at Pembroke Dock. She was built for Government, and the material composing her was supplied by the Landore Siemens Steel Company.

To-day makes the ninth day the unfortunate colliers at the Tynewydd Colliery, in the Rhondda Valley, have been entombed. Night and day willing hands have worked to release the poor fellows. Diving operations proved impracticable, and recourse was had to pumping out the water, and men have been working might and main to cut their way to the imprisoned men. Fortunately, after a day of unceasing effort, of increasing anxiety, and of intense excitement, they will now shortly be reached. They had conversed with their rescuers at intervals during the day, and had described the low condition to which they had been reduced after their long and weary time or incarceration. In the memorable inundation of the celebrated Nine Locks Pit of Lord Dudley's, eight years ago, ten men and three boys were imprisoned, most of them 108 and one of them 140 hours, or six days and nights, yet only one died. Life has been known to endure eight days and nights under similar circumstances, the colliers suffering most from cold, not hunger.

Mr. Howell Davies, of Rhondda Merthyr Colliery, Treherbert, writes—"We may, perhaps, learn a lesson from the fatal accident by which the courageous Wm. Morgan met his death at the Troedyrhiw pit, Rhondda Valley, on Thursday. If ever a heading should be opened again for the sake of extricating men imprisoned in compressed air two pairs of strong doors or gates, within 10 ft. of each other, should be placed in such heading, and as near as practicable to the place where the 'loose' would be struck. These doors would act in the same manner as the gates of a lock on a canal, or on a

seaport dock, through which the men could be taken out as soon as the opening was made without being in any danger whatever from the rush of the escaped air."

TELEGRAM: FRIDAY, 5 P.M.—"The imprisoned colliers are all released, and are alive. A hole was made this morning, when a man got through and gave them food. The first man was got out at 2·35; the second at 2·45; and the third at 2·55. The last two men who were got out were very weak. All were removed to the hut at the top of the pit, and the doctors say they will do well with care. When rescued the water had got up to their waists. All had to be carried out."

THE DRAINAGE OF THE TAFF VALE DISTRICT.—At a meeting of the South Wales Institution of Engineers, held at Cardiff on Friday, the paper on "The Drainage of the Taff Vale District," read by Mr. BASSETT, M. Inst. C.E., and Past President of the South Wales Institution of Engineers, at a former meeting, was discussed. This scheme embraces the construction of water-tight culverts for carrying away the sewerage waters from the various valleys, of which Aberdare, Ferndale, and Treherbert are the extreme or highest points. If culverts are constructed in these valleys as proposed, they can be connected at Treforest, where they all merge into one culvert, and then be led towards the sea. The question as to the utilisation of the sewerage waters is considered by the author as quite a secondary matter as compared with the all important necessity of adopting a complete and effective system of drainage for the district. At the same time the author strongly advocates the utilisation of the sewerage water over lands in portions of the Taff Valley, or on the low lands between Cardiff and Marshfield, rather than discharge it into the sea. The rapid inclination of the various valleys affords peculiar facilities for carrying out a comprehensive system of this kind, as the average inclination varies from 1 in 53 to 1 in 500. The author also contends that no isolated system of drainage for any portion of the district can be so efficiently and so economically carried out as a comprehensive scheme of the character suggested. The sum of 100,000*l.* was stated as the cost of the main culverts, which would be 40 miles in extent. If this amount could be raised upon the rates of the district, by which interest and capital would be repaid in a certain number of years, the average annual rate payable per house would not exceed 4*s.* 1½*d.*; and on colliers' houses would not probably be more than 2*s.* 6*d.* to 3*s.*, which certainly cannot be considered a heavy tax to be paid by the owners of house property, taking into consideration the beneficial results that must follow from the establishment of a complete sysem of drainage. We are informed that Mr. Bassett has recently been professionally engaged to report upon the drainage of Mountain Ash, where he had recommended that the sewerage waters should be utilised over lands between Mountain Ash and Aberdare Junction. But there are many places in the Rhondda Valley where such facilities for the utilisation of the sewerage waters could not be obtained. At the request of the President (Mr. J. Brogden), Mr. Bassett gave particulars as to the various sizes of the proposed culverts, together with their cost, the rate of inclination, the quantity of sewerage water to be discharged, together with the discharging capacity of the proposed culver s, as well as the death-rate in various parts of the valley. The discussion was then opened by the President, who was followed by Mr. Wilkinson and others, the general opinion being that a comprehensive scheme of the character suggested must sooner or later be adopted, as the condition of the district was such that in the interest of the public health the question should not be further postponed.—*Western Mail.*

REPORT FROM THE FOREST OF DEAN.

April 19.—As further illustration of the depression of the times we have to record some notices of further reduction of wages. On Monday, with a view to keep the trade and work in motion, a notice of 5 per cent. reluction of wages was put at Cinderford Ironworks, and one to the same effect at the Forest Vale Ironworks; the former owned by the Messrs. Crawshay and Son, and the other by Mr. Russell. The Coal Trade is no better than at the date of our last report, but rather worse if anything. Colliers working only from three to four days a week, and in some instances even a lower average of time. No further change in the "local situation" calls for comment or remark, and so for the present we conclude.

REPORT FROM THE NORTH OF ENGLAND.

April 19.—The Cokemen's Association held a meeting to-day (Thursday) at Bishop Auckland respecting the proposed reduction in their wages, and decided almost unanimously that the matter should be referred to arbitration. The owners originally claimed 6 per cent. from the cokemen, but they gave notice that if this were not accepted without demur they should reserve the right of asking for an additional 2½ per cent., which will bring the wages down to the wage rate of 1871, so that it is this 8½ per cent., and not the 6 per cent. reduction, that will now go to arbitration. The general effect of these reductions will be to bring the rate of wages down to the level of 1871. It will not, however, follow that the cost of producing coal will return to the prices of that year, seeing that the Mines Regulation Act and other influences have interposed charges other than hewing rates calculated to create a permanent increase in the cost of winning coal.

I am told to day that the owners of Hutton Henry Colliery, which has been in course of sinking near Castle Eden for upwards of three years, have just come upon the Low Main seam, which is 5 ft. 6 in. thick. This is regarded as a most encouraging sign, and will be likely to stimulate mining enterprise in that part of the country. Mr. John Morley, of Darlington, has acted as mining engineer for the company, Mr. Jos. Dodd, M.P., of Stockton, being the Chairman.

The Northumberland miners have resolved to send a deputation of six workmen, and Mr. Burt, M.P., to wait upon the employers, on Saturday next, relative to the proposed reduction of 10 per cent. in wages and the withdrawal of free house and coals. The steam coal trade has been in a very depressed condition for a long time, but some slight symptoms of revival having now manifested themselves, it is probable that the owners may be disposed to modify the claim they originally put forward.

The production of coal in the great South Durham coal field for 1876 has just been published. It amounts to 19,073,056 tons, being a decrease of 383,478 tons on the production of 1875. In the total production of the country for 1876 there is an increase of 2,258,000 tons over the production of 1875.

In the Cleveland ironstone mining district the production of ore for last year, which has just been rendered available, was 6,564,000 tons, or 478,459 tons more than the production of 1875. The ironstone miners, having considered the claim of the owners for another reduction of wages, have agreed to refer the matter to the arbitration of Mr. Fitzjames Stephens, Q.C., who will sit at Saltburn-by-the-Sea, about the middle of May, to adjudicate on the case. The wages of the Cleveland miners are already as low as the rates of 1871; but they now enjoy certain local considerations that were not current at that time.

In the Iron Trade of the Cleveland district there has not been much change for the last few days. Business was exceedingly limited on 'Change at Middlesborough on Tuesday. Enquiries were slightly more numerous, however, and hence a disposition towards greater firmness. No. 1 was quoted at 46*s.*, and No. 3 at 42*s.* per ton. It is believed that a number of blast-furnaces will shortly be blown out. There are now 111 in blast, producing over 180,000 tons of pig-iron per month. This quantity is considerably in excess of the actual requirements of consumers, and hence there has been a large quantity of iron going into stock, either in makers' hands or in the public warrant stores. The total extent of iron now in stock is over 220,000 tons. This is a larger quantity than has been touched for many years.

Several ironworks are now in the market, including the South Bank and Clay Lane Works, belonging to Thomas Vaughan and Co.'s trustees, and representing 14 furnaces, the West Hartlepool Iron Company's Works, the Bishop Auckland Ironworks, the Whessoe Ironworks, and several smaller concerns. Money, however, is so scarce, and confidence so impaired, that although these works may now be bought for much less than they cost, no one seems disposed to look at them.

Proposals are now under consideration with a view to helping the emigration of ironworkers and miners from the North of England. The ironworkers have already held a meeting, and decided on helping the emigration of the best ironworkers in the event of the ironmasters claiming a further reduction of wages on the expiry of the notice now pending for a termination of the existing wages agreement. The Cleveland ironstone miners are also considering how far they can help those of their number who feel disposed to emigrate to do so, and a meeting of the executive will be held in a few days to consider the propriety of placing aside a sum of money for this purpose. A large number of men have already left both districts, owing to the scarcity of employment and the reduced wages paid.

CHARGING BLAST-FURNACES.—An improved method of charging and managing blast furnaces having longitudinal compartments has been invented by Mr. CHARLES HIMROD, of Youngstown, U.S.; it consists in feeding ore and flux into one compartment and fuel into the next, and at intervals reversing this mode of charging to distribute the furnace burden, the generated gases being compelled to traverse the compartment in which the ore is uppermost on their way to the exit to their entire exclusion from the ore in which the fuel is uppermost. The means for carrying out the method consists in a longitudinally divided stack having an exhaust pipe that communicates with each compartment of the divided stack through separate pipes with dampers arranged to be alternately reversed and separately controlled.

THE ALMADA AND TIRITO SILVER MINES.—Interesting reports from these mines up to March 8 last will be found in this week's Journal. We are glad to note that the docile ore is increasing, and that the black ore from the Mina Grande continues to be beneficiated satisfactorily by roasting and the pan process. When the 24 fm. level is driven under the shoot of ore discovered in the 12 there is every reason to expect a further supply of black ore. We understand that a geological map and section of the district immediately surrounding these mines, prepared by a local geologist, Senor Moreno, has been received by the directors, and can be seen at the company's offices. These prove conclusively that the formation is of an igneous and probably volcanic character, similar to the rocks in which the celebrated Comstock Mines are found.

A FORTUNATE MINER.—A miner, of Lanner, near Redruth, named Hosking, who emigrated to the diamond fields of South Africa, has recently been fortunate enough to find a nugget of gold weighing 123 ozs. This nugget he sent home to his wife by a comrade returning in ill-health, and on Saturday she deposited it for safety at a local bank.

A HEAVY BLAST OF GRANITE.—A successful blasting operation was last week performed at one of the quarries of the South Cornwall Granite Company, near St. Blazey. About 700 tons were thrown down with very little breakage, and one block now standing in the quarry contains 8000 cubic feet, or nearly 600 tons, without a flaw or joint of any kind or any discolouration. There are several smaller blocks of from 30 to 60 tons weight.

EAST LOVELL.—We are glad to find that this mine is still being prosecuted with vigour, under the able management of Mr. Henry Rogers and Capt. Quentrall. Mr. Rogers is a very large holder, and deserves the thanks of the shareholders and district for his well known pluck and energy, and which, by-the-bye, the adventurers have twice recognised in the shape of testimonials.

VICISSITUDES OF MINING.—Three mines near Liskeard were referred to at East Caradon meeting. Marke Valley shares, within a comparatively short time, have sold as low as 6*d.* per share, and as high as 12*l.* per share—a difference of 108,000*l.* in the market value of the mine; present price 15*s.* to 20*s.* In East Caradon a still greater range of prices has taken place, as high as 50*l.* per share, and as low as 1*s.* 6*d.*—a difference of 307,000*l.*; present price 15*s.* to 20*s.* Again, at Herodsfoot share have been known as 1*l.* 17*s.* 6*d.* per share, and as high as 80*l.* per share—a difference of 5½,000*l.*; present price 5*l.* The ups and downs in the market value of these three mines amount, therefore, to 465,000*l.*—close upon half a million sterling.—*West Briton.*

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
April 4	Esgairmwyn	12	£ 8 2 0	South Wales Smelt. Co.
6	Tan-y-Bwich	50	13 10 0	Walker, Parker, and Co.
18	Pennerley	50	13 5 6	St. Helen's Smelt. Co.
—	Hornachos	44 3 1	29 1 0	Nevill, Druce, and Co.
—	Great Laxey	100	22 13 6	Treffry's Estate.
19	Foxdale	110	21 10 0	Panther Lead Company.
—	Roman Gravels	55	13 11 0	Nevill, Druce, and Co.
—	ditto	55	13 15 0	Panther Lead Co.
—	ditto	55	13 17 6	Sheldon, Bush, and Co.
—	ditto	55	13 12 6	ditto
—	Tankerville	50	13 8 0	Panther Lead Co.
—	ditto	50	13 5 0	Sheldon, Bush, and Co.

BLACK TIN.

Date.	Mines.	Tons c. q. lb	Price per ton.	Amount.	Purchasers.
April 11	Pedn-an-drea	8 4 3 23	£43 10 0	£358 15 6	Trethellan.
12	ditto	7 11 7 27	43 10 0	329 9 10	Carvedras.
18	Wheal Coates	2 3 0 16	41 17 6	90 6 7	Daubuz.
—	Wheal Grenville	11 16 3 0	43 5 0	513 18 0	—

COPPER ORES.

Sampled April 4, and sold at the Royal Hotel, Truro, April 19.

Mines.	Tons.	Price.	Mines.	Tons.	Price
Devon Great Consols	92	£2 5 6	Marke Valley	29	£5 17 0
ditto	88	2 7 6	Glasgow Caradon	62	2 6 6
ditto	84	2 8 6	ditto	61	3 13 0
ditto	77	2 10 0	ditto	59	6 6 6
ditto	76	4 14 6	ditto	58	4 14 6
ditto	73	6 9 6	Gawton	93	1 16 0
ditto	72	2 11 6	ditto	66	1 19 6
ditto	71	7 0 6	ditto	47	2 9 6
ditto	69	2 9 0	ditto	6	7 5 6
ditto	67	6 9 0	Wheal Crebor	105	2 17 6
ditto	41	2 8 0	ditto	83	2 19 6
South Caradon	93	4 4 6	Hingston Down	67	2 10 6
ditto	91	4 10 0	ditto	50	2 7 0
ditto	73	5 9 0	ditto	41	0 10 0
ditto	60	11 13 0	Phœnix	90	5 6 0
ditto	56	12 8 0	ditto	40	3 0 6
ditto	53	6 15 6	East Caradon	80	5 8 6
ditto	44	5 9 6	ditto	40	4 18 0
Marke Valley	80	3 4 6	Wheal Courtenay	46	3 4 0
ditto	74	2 19 0	ditto	31	8 3 6
ditto	72	4 10 6	Prince of Wales	61	2 6
ditto	50	2 3 6	ditto	10	7 11 6
ditto	35	2 6 0	Belstone	33	7 5 0

TOTAL PRODUCE.

Devon Great Con.	810	£3049 1 0	Hingston Down	158	£ 307 3 6
South Caradon	479	3193 13 6	Phœnix	130	598 0 0
Marke Valley	340	1161 0 0	East Caradon	120	630 0 0
Glasgow Caradon.	240	1014 0 6	Wheal Courtenay.	77	400 12 6
Gawton	212	457 14 6	Prince of Wales	71	217 11 6
Wheal Crebor	188	548 16 0	Belstone	33	239 5 0

Average standard	£105 13 0	Average produce	6½
Average price per ton	£4 3 0		
Quantity of ore	2849	Quantity of fine copper 185 tons 17 cwts.	
Amount of money	£11,797 17 6		

LAST SALE.—Average standard £100 11 0 | Average produce 7⅜
Standard of corresponding sale last month, £103 19 0—Produce, 6⅝

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	656	£2728 6 9
Grenfell and Son	265	1108 18 6
Nevill, Druce, and Co.	404½	1589 11 6
Williams, Foster, and Co.	64½	256 0 3
Mason and Elkington	318½	1338 7 6
Charles J. Lambert	373½	2173 9 9
Sweetland, Tuttle, and Co.	189	803 3 3
Total	2849	£11,797 17 6

NO SALE on Thursday next, April 26.

Copper ores for sale at Tabb's Hotel, Redruth, on Thursday week—Mines and parcels.—Mellanear 416—West Seton 300—West Tolgus 250—East Pool 209—South Crofty 140—Killifreth 80—South Carn Brea 69—Champion's Ore 44—North Wheal Busy 43—Carn Brea 36—Botallack 36—North Treskerby 35—New Cooks Kitchen 25—Wheal Unity Wood 22—Crenver 9—New St. Agnes 7.—Total, 1721 tons.

In the High Court of Justice—Chancery Division.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867, AND IN THE MATTER OF THE BIRCHGROVE GRAIGOLA COLLIERIES (LIMITED).

THE CREDITORS of the above-named Company are required, on or before the 21st day of May, 1877, TO SEND IN THEIR NAMES AND ADDRESSES, and the PARTICULARS OF THEIR DEBTS OR CLAIMS, and names and addresses of their solicitors (if any) to EDMOND ETLINGER, of ... 4, Queen's Buildings, Queen Victoria street, the Liquidator of the said com... by, and, if so required by notice in writing from the said Liquidator, are by ... or Solicitors, to COME IN and PROVE THEIR SAID DEBTS OR CLAIMS ... the Chambers of the Vice-Chancellor Sir RICHARD MALINS, at No. 3, Stone ... Buildings, Lincoln's Inn, in the county of Middlesex, at such time as shall be ... fied in such notice, or, in default thereof, they WILL BE EXCLUDED ... M THE BENEFIT OF ANY DISTRIBUTION made before such debts are ... ved. Thursday, the 31st day of May, 1877, at Twelve o'clock at noon, at the ... d Chambers, is appointed for hearing and adjudicating upon the debts and ... ims.

ALFRED RAWLINSON, Chief Clerk.

WALTER WEBB, 23, Queen Victoria-street, London (Solicitor for the Liquidator).

Dated this 13th day of April, 1877.

In the High Court of Justice—Chancery Division.

VICE-CHANCELLOR MALINS.

IN THE MATTER OF THE BRENT MOOR CHINA-CLAY AND MICA WORKS COMPANY (LIMITED), AND

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867.

THE DIRECTORS of the ABOVE-NAMED COMPANY are required, on or before the 5th day of May, 1877, to SEND their NAMES and ADDRESSES and the PARTICULARS of their DEBTS or CLAIMS, and names and addresses of their solicitors (if any) to ALFRED COTTON HARPER, ... cial Liquidator of the said company; and, if so required by notice in writing ... m the said Official Liquidator, are by their solicitors to COME IN and PROVE ... r said DEBTS or CLAIMS at the chambers of the Vice Chancellor Sir RICHARD ... LINS, at No. 3, Stone Buildings, Lincoln's Inn, in the county of Middlesex, at ... th time as shall be specified in such notice, or in default thereof they will be ... CLUDED from the BENEFIT of any DISTRIBUTION made before such ... ts are proved.

... Tuesday, the 15th day of May, 1877, at Twelve o'clock at noon, at the said cham... , is appointed for hearing and adjudicating upon the debts and claims.

ALFRED RAWLINSON, Chief Clerk.

Dated this 9th day of April, 1877.

CAUTION.—APPLICATION having been made by PERSONS ... UNAUTHORISED BY US for ADVERTISEMENTS for the CHINESE ... ENTIFIC MAGAZINE, we think it right to notify that we are the SOLE ... ENTS IN EUROPE appointed to RECEIVE ADVERTISEMENTS, and that ... US ALONE should such be addressed. JOHN BOURNE AND CO. ... 66, Mark-lane, London.

SLATE QUARRY IN WALES.

FOR SALE, BY PRIVATE BARGAIN.

THE NORTHERN WELSH SLATE COMPANY'S QUARRY, "CWMAREL FAWR," situated near CARNARVON, in the centre of the "Bangor Slate Range," at present in full operation, producing excellent slates, ... comprising ONE HUNDRED AND TWENTY-FOUR ACRES, leased from ... Crown at a moderate royalty.

For particulars, apply to MOORE and BROWN, C.A., No. 166, St. Vincent-street, Glasgow.

TO CAPITALISTS.

VALUABLE SLATE AND SLAB PROPERTY, ON SALE.

Apply to Mr. H. T. OWEN, Tanymarian, B' Festiniog, Merionethshire.

A FIRST-CLASS SLATE QUARRY ON SALE — with good report by one of the cleverest quarry managers in Wales. Map ... d tracings on application.

Apply, "No. 1," Post Office, Carnarvon.

PUMPING ENGINE FOR SALE,— In excellent condition. Inverted cylinder 60 inches diameter, 9 feet stroke, ... rnish valves. Cataract. Wrought iron main beam and cast-iron balance beam.

Apply, H. BRAMALL and Co., St. Helens, Lancashire.

SMALL COAL WORKS FOR SALE.

TO BE SOLD, the LEASE, PLANT, &c., of the BROWN CLEE COAL WORKS. Good opportunity for a practical man. Payment by in... ments if preferred. Ironstone in neighbourhood.

Apply to Mr. T. BELL, Ditton Priors, Bridgnorth.

APPLEBY IRONWORKS, FRODINGHAM.

FOR SALE, a PRACTICALLY NEW BRICK-MAKING PLANT, only having been used eighteen months in the erection of these ... rks, consisting of TWO of SCHOLEFIELD'S PATENT SEMI-DRY BRICK ... ESSES, complete, with gearing and 9 feet pan and rollers; also a PAIR of ... et RIBB ROLLERS, all in first-rate working order; with or without a first... 25-horse power ROBEY MINING ENGINE, new eighteen months ago, and ... first class condition.

Apply to the APPLEBY IRON COMPANY (Limited), Doncaster.

FOR SALE, a 18-horse power PORTABLE STEAM ENGINE, with link motion reversing gear, ready for delivery.

A 25-horse power PORTABLE.

An 18-horse power VERTICAL STEAM ENGINE, with link motion reversing ... ar, also gear to wind and pump.

A 9 ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER.

Apply to—

BARROWS AND STEWART, ENGINEERS, BANBURY.

FOR SALE, or LEASE, GALVANISED IRON and STONE SHEDS, in SOUTH DOCK, SWANSEA, alongside Wharf and Rail, and ... itable for Warehousing Metals, Minerals, Esparto, and other fibres, &c.

To view, apply to Mr. D. WILLIAMS, 36, Argyle-street, Swansea. For terms, to ... A. B.," Messrs. Pottle and Son, Royal Exchange Buildings, London, E.C.

SULPHATE OF BARYTES FOR SALE.— Fine powdered, beautifully white; also in the Rock or Crude State, free ... om Lime and Metallic Oxide.

Samples on application to—

RUTHWAITE BARYTES MINING COMPANY, Nov. 17, 1875. WHITEHAVEN.

SULPHATE OF BARYTES FOR SALE.— Samples forwarded on application to—

MR. GEO. KING PATTEN, Secretary.

Llan Gan Mining Company, 47, Ann street, Birmingham.

THE BIRMINGHAM WAGON COMPANY (LIMITED) MANUFACTURE RAILWAY WAGONS of EVERY DESCRIPTION, for ... IRE and SALE, by immediate or deferred payments. They have also wagons ... hire capable of carrying 6, 8, and 10 tons, part of which are constructed spe... ally for shipping purposes. Wagons in working order maintained by contract.

EDMUND FOWLER, Managing Director.

WAGON WORKS,—SMETHWICK, BIRMINGHAM.

*** Loans received on Debenture; particulars on application.

MINES: THEIR VENTILATION AND SAFETY. The undersigned, JOSEPH EDWARDS, begs to call the attention of Colliery Proprietors or Managers to his PATENT VENTILATING and MINE SAFETY APPARATUS, which will cleans the foulest workings from all impure or dan... gerous gases, and keep them free from any such accumulations. The apparatus is ... imple, inexpensive, and soon applied.

For particulars, apply to JOSEPH EDWARDS, Cattle Market Hotel, Chorley, Lancashire.

[CIRCULAR.]

GAZETTEER OF CORNWALL.

(INCLUDING THE SCILLY ISLES).

SIR,—I take the liberty of inviting your attention to a work in preparation for the press, to be intituled "A Geographical Dictionary, or Gazetteer of Cornwall." Such a publication will supply an obvious want, there being no work of the kind extant. This work will contain (amongst other matter) the following particulars:—

The name and description of every parish, township, and ecclesiastical district in the county, with the area, the rent charge in lieu of tithes, name of incumbent, patron of advowson, and population in 1871.

The name and situation of every nobleman's and gentleman's seat, mansion, villa, &c., with name of occupant.

The name of every village, hamlet, and place.

The name, contents, and owner of every farm.

The name of every mine, china clay work, &c.

The name of every church and chapel-of-ease.

The situation of every preaching house.

The whole of the names are alphabetically arranged, so that any required place can be as easily found as a word in the dictionary of a language.

With a view to the supply of full and accurate information as to the places, I am making a tour through all the parishes, excepting those with which I am thoroughly conversant.

Prefixed to the title-page will be a copy of the Ordnance Map of Cornwall, with the addition of all parochial boundaries, taken from the Tithe Commutation Maps, and all the railways in the county.

The work will be published by subscription, in one volume 8vo. Price 15s.

I respectfully request the favour of your patronage.

Hall, Pyrade, Truro, April, 1877. R. SYMONS, C.E., and Surveyor.

P.S.—The number already subscribed for is about 200. I want an additional 800 before I go to press.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WHEAL GRAMBLER MINING COMPANY.—By an Order, made by His Honor the Vice-Warden of the Stannaries, in the said Matter, dated the 12th day of April instant, on the Petition of Robert Tweedy, Sir Frederick Martin Williams, Baronet, M.P., William Tweedy, Robert Milford Tweedy, and Charles Tweedy, carrying on business as bankers at Redruth and elsewhere, in the county of Cornwall, under the style or firm of "Tweedy, Williams, and Co.," claiming to be creditors of the said mining company, IT WAS ORDERED that the said Wheal Grambler Mining Company should be WOUND-UP by the Court under the provisions of the Companies Act, 1862.

ROBERT MACLEANE PAUL, Truro (Solicitor for the said Petitioners).

Dated Truro, the 13th day of April, 1877.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WHEAL GRAMBLER MINING COMPANY.—The Vice-Warden has, by an Order made in the said Matter, bearing date the 12th day of April instant, APPOINTED CHARLES WILLIAM CLINTON, of Truro, within the said Stannaries, an Officer of the said Court, to be the OFFICIAL LIQUIDATOR of the said company. FREDERICK MARSHALL, Registrar.

Dated Registrar's Office, Truro, the 13th day of April, 1877.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WHEAL GRAMBLER MINING COMPANY.—Notice is hereby given, that ALL CREDITORS of the above-named company are required, on or before the 28th day of April instant, to SEND in their NAMES and ADDRESSES, and the AMOUNTS and PARTICULARS of their SEVERAL CLAIMS, to CHARLES WILLIAM CLINTON, the Official Liquidator of the said company, at the Stannaries Court Office, in Truro. FREDERICK MARSHALL, Registrar.

Dated Registrar's Office, Truro, the 13th day of April, 1877.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACTS, 1862 and 1867, and of the NEW CONSOLS SILVER AND ARSENIC WORKS (LIMITED).—Notice is hereby given, that a PETITION for the WINDING-UP of the above-named company by the Court was, on the 16th day of April instant, presented to the Vice-Warden of the Stannaries, by Thomas Westlake, of Calstock, in the county of Cornwall, merchant, a shareholder, and claiming to be also a creditor of the said company, and that the said petition is directed to be heard before the Vice-Warden at the Law Institution, in Chancery lane, London, on Tuesday, the 1st day of May next, at Four o'clock in the afternoon.

Any contributory or creditor of the company may appear at the hearing and oppose the same, provided he has given at least two clear days' notice to the petitioner, his solicitor, or his agent, of his intention to do so, such notice to be forthwith forwarded to P. P. Smith, Esq., Secretary of the Vice-Warden, Truro.

Every such contributory or creditor is entitled to a copy of the petition and affidavit verifying the same from the petitioner, his solicitor, or his agent, within 24 hours after requiring the same, on payment of the regulated charge per folio.

Affidavits intended to be used at the hearing, in opposition to the petition, must be filed at the Registrar's Office, Truro, on or before the 27th day of April instant, and notice thereof must at the same time be given to the petitioner, his solicitor, or his agent. LEWIS PASS, 86, Queen-street, Cheapside, London (Solicitor for the Petitioner).

J. G. CHILCOTT, Truro

Dated Truro, 18th April, 1877. (Agent of the said solicitor).

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WEST WHEAL GORLAND MINING COMPANY.—TO BE SOLD, under the direction of the Registrar of this Court, on Monday, the 30th day of April inst., at Eleven o'clock in the forenoon, at the West Wheal Gorland Mine, in the parish of Gwennap, within the said Stannaries, in One or more Lots, subject to such conditions as shall be then and there produced, all that the INTEREST of the said company of and in the sett under which its operations within and upon the said mine have been carried on, together with the whole of the undermentioned

MINING PLANT, MACHINERY, MATERIALS, and EFFECTS

Belonging to the said company, now being in and upon the said mine, viz.:—

24 in. ROTARY ENGINE, 4 ft. stroke, with two fly wheels and ONE BOILER, about 10 tons; 16 head iron stamps axle, with driver and cog wheel; frames, heads, and lifters; about 30 fms. 8 and 9 in. pumps, plunger, &c.; 14 fms. 8 in. drawing lift, and 10 fms. 6 in. drawing lift; about 30 fms. 8 in. rods and plates; 90 fms. of ladders; large cog wheel; iron shaft and blocks for working flat rods; 56 fms. round iron flat rods; three horse whims; shaft tackles, with shieves, stand, and pulleys; two balance bobs; wire and hemp ropes; several kibbles; two round buddles and small water wheel; two square buddles; eight flat frames and launders; 30 fms. launders; 20 fms. railroad and stands; iron tram wagon; screw stock; taps and plates; vice, two anvils, two bellows; smiths' and miners' tools; borer steel; carpenters' bench; sawpit frame; Norway balk; beam, scales, and stand; barrows; shovels; new and old brass, iron, copper, and lead; leather; safety fuse; candles; brass beam, scales, and weights; miners' dial and stand; copying press and stand; account house furniture; and a quantity of other effects in general use in mines.

To inspect the above, apply to the Bailiff in charge on the Mine; and for further particulars to Mr. CHARLES WILLIAM CLINTON, the Official Liquidator of the said company, at the Stannaries Court Office, in Truro.

HODGE, HOCKIN, AND MARRACK, Truro.

(Agents for S. T. G. Downing, Redruth, Solicitor for the Official Liquidator.)

Dated Stannaries Court Office, Truro, the 18th day of April, 1877.

THE BIRCHGROVE GRAIGOLA STEAM COAL COLLIERIES, AND PATENT FUEL WORKS, GLAMORGANSHIRE.

One of the few Collieries possessing Fuel Works of the best description, and the most convenient and economical kind erected at a cost of £6000.

MESSRS. NORTON, TRIST, WATNEY, AND CO. WILL OFFER FOR SALE, at the Mart, London, on Friday, May 4th, at Two o'clock precisely, in One Lot, very valuable MINERAL PROPERTY, known as

THE BIRCHGROVE GRAIGOLA STEAM COAL COLLIERIES,

Situated in the Swansea Valley, in the parish of Llansamlet.

Together with the PATENT FUEL WORKS erected in 1875 under an agreement with the Patentee, dated 16th November, 1874, according to H. G. Fairburn's Patent, close to the Sisters Pit and railway siding, consisting of a DOUBLE-ACTION PRESS (Fairburn's patent), heating trough, disintegrator, pitch mill, elevator for coal, elevator for pitch, elevator for mixture, THREE STEAM ENGINES and TWO BOILERS, and enclosed in a substantial stone building.

The works are capable of turning out 200 tons of fuel in blocks of 20 lbs. each in twelve hours. There is a maximum royalty of 6d. per ton of fuel made payable to the patentee, but a royalty is liable to a reduction in certain contingencies.

The Buildings, Steam-engines, and Manager's Residence, together with all the Plant, Stock, including Horses, Crops, and Implements of Draining, &c., as per Inventory, which will be produced at the sale.

The following is a copy of a report made by Dr. Percy, of the Metallurgical Laboratory, Royal School of Mines, No. 28, Jermyn-street, December 5th, 1876:—"The sample of Birchgrove fuel has been tested according to instructions with the following results per 1 lb. of the fuel—' Calorific power as determined by Thompson's Colorimeter, 14·2 lbs.'"

Also the LEASE of SHIPPING WHARF, with the Stock and Plant thereon, and office, store-house, lodge, and stable, situate in the New Cut, in the town of Swansea, in the county of Glamorgan, in the midst of iron, copper, tin-plate, and patent fuel works and steel manufactories, and about five miles from the seaport town of Swansea, and directly connected therewith by the Swansea Vale Railway, branching into both the colliery yards.

Particulars may be had of Messrs. FRANK RICHARDSON and SADLER, Solicitors, 28, Golden-square, and Richmond, Surrey; WALTER WEBB, Esq., Solicitor, 23, Queen Victoria-street, E.C.; Messrs. STRICK and BELLINGHAM, Solicitors, Swansea; and of the Auctioneers, 62, Old Broad-street, London, E.C.

VALUABLE MINING PROPERTY FOR SALE.

THERE WILL BE SOLD, BY PUBLIC ROUP, within the Faculty Hall, Glasgow, on Wednesday, the 25th April, 1877, at Two o'clock afternoon, the PROPERTY of the GALWAY MINING COMPANY (LIMITED), in Liquidation, in One or more Lots, to suit purchasers.

The property consists of (1) the LEASES of about 1350 acres of LAND, containing TWO MINES, which have been partially worked and explored; (2) the BUILDINGS at the mines, consisting of blacksmiths' shops, workmen's house, stores, &c.; (3) MACHINERY, consisting of horizontal ENGINE, water-wheel, pumping gear, &c.

The Liquidators are also PREPARED to SELL the STORES of WOOD, &c., and MINING UTENSILS.

The leases, inventory, and other papers may be seen in the hands of the subscriber, who will supply full information to intending purchasers.

17th March, 1877. J. H. M. BAIRNSFATHER, Solicitor, Hamilton.

FOR SALE, SLATE QUARRIES, NEAR CARNARVON.— The property consists of about 120 acres, and is held under lease, having nearly 80 years to run at a nominal rent, and very moderate optional lordship. It is intersected by a public railway, giving communication to all parts of the country, and there are extensive openings on the ground.

The buildings, machinery, plant, inclines, &c., are all in good working order, and nearly £10,000 worth of slates have been made during the last 18 months. These find a very ready market, and by a further judicious expenditure of capital the output might be largely increased. Several of the present proprietors may contribute towards further development, and should a purchaser desire it, payments may be spread over a term of years. There is also an increasingly valuable wayleave included with the property.

Further particulars may be obtained from JOHN MENZIES, Carnarvon; or from R. EASTON AITKEN, 68, St. Vincent street, Glasgow, by the latter of whom Tenders for the Lease and Buildings will be received up to 15th May next.

A purchaser may have the Plant at a valuation. The highest or any Tender may not be accepted.

TO ENGINEERS, AND OTHERS.

IMPORTANT SALE OF ENGINEERING PLANT WILL TAKE PLACE ON 30TH APRIL.

ROCK DRILLS, LATHES, STEEL TOOLS, ENGINES, &c.

Full particulars will be advertised next Saturday.

VALUABLE SMALL MINERAL ESTATE.

TO BE SOLD, BY PRIVATE BARGAIN, the LANDS and ESTATE of BROTHERTON, in the parish of West Calder, about 15 miles from Edinburgh, and 10 minutes walk from New Park Station.

The lands consist of 120 acres, and are at present let at an annual rent of £131. The public burdens are small.

The lands are in the midst of the mineral oil district, and contain shale, limestone, and other minerals believed to be of great value. There is also freestone, which might easily be worked.

Offers will be received from JAMES ROBERTSON, Solicitor, 4, Lindsay-place, Edinburgh, in whose hands are the titles, analysis of shale, &c.

FOR SALE (cheap), to clear, ONE PAIR of 40-horse power direct acting double-action condensing PUMPING ENGINES; cylinder, 35½ in. diameter; pumps, 21½ diameter, 36-in. stroke; fly wheel, 14 ft. diameter, about 12 tons; will lift 2800 gallons per minute 150 ft. high—have been very little used. These engines can be easily compounded, and would do for mill driving purposes. Approved acceptances taken in payment.

For particulars, apply to W. P. FRANCE, Priory Lodge, Peckham.

FOR SALE (cheap):—

ONE 20 h.p. PORTABLE ENGINE, in thorough repair, on iron running wheels; funnel, 20 ft. high.

ONE 10 h.p. SEMI-PORTABLE, nearly new, with funnel, 30 ft. high.

ONE 8 h.p. PORTABLE, on iron running wheels.

ONE 6 h.p. DIRECT-ACTING ENGINE, with turned fly-wheel.

ONE 2 h.p. MARINE ENGINE—a perfect model; fit for a gentleman's launch; nearly all metal.

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MALLEABLE IRON CASTINGS, Every Description.

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ON SALE, TWO CORNISH BOILERS, 30 ft. by 7 ft. diameter Two flues through each. Safe at 60 lbs. pressure working.

Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE PAIR of 18 in. high-pressure HORIZONTAL ENGINES, for winding, fitted with slot link motion. First-class pair of engines.

Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE PAIR of 15 in. HORIZONTAL WINDING ENGINES, with slot link motion. Will be sold cheap.

Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE 25-horse power double cylinder PORTABLE ENGINE, fitted with slot link motion for winding.

ONE 20-horse power double cylinder PORTABLE ENGINE.

Will be sold cheap, and are in first-class order.

Apply to HENRY PARKINSON, Foundry-street Boiler Works, Bolton, Lancashire

ON SALE, ONE 8-horse power PORTABLE ENGINE, fitted up with winding drum; slot link motion; made by Clayton and Shuttleworth. Price £130.

Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE PAIR of 25 inch. coupled HORIZONTAL WINDING ENGINES, with drums and brake gear. Also ONE PAIR of 22 in. ditto. Will be sold cheap.

Apply to H. PARKINSON, Foundry-street, Bolton.

ON SALE, ONE strong well-built condensing BEAM ENGINE, by a first class maker, equal to new; cylinder 36 in. bore, 5 ft. stroke. Can be seen standing, and will be sold cheap. ONE close-built self-contained condensing BEAM ENGINE, stands on independent bed on six columns; cylinder 28 in. bore, 4 ft. stroke. As good as new. Can be seen standing, and will be sold cheap.

Apply to HENRY PARKINSON, Foundry-street, Bolton.

BOILERS ON SALE.—FOUR GALLOWAY'S PATENT BOILERS, 30 ft. by 7 ft., safe to work at 70 lbs. on the square inch.

TWO BOILERS, 28 ft. by 7 ft., with two flues through.

TWO BOILERS, 26 ft. by 7 ft., two flues through.

ONE BOILER, 20 ft. by 7 ft., two flues through.

ONE BOILER, 18 ft. by 6 ft., one flue through.

Also several smaller sizes.

Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE 16 horse power double cylinder PORTABLE ENGINE, for winding.

ONE 12 horse power PORTABLE ENGINE.

ONE 10 horse power PORTABLE ENGINE.

ONE 8 horse power PORTABLE ENGINE.

ONE 6 horse power PORTABLE ENGINE.

Equal to new, and will be sold cheap.

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ON SALE, ONE PAIR of 25 in. horizontal WINDING ENGINES

ONE PAIR of 18 in. horizontal WINDING ENGINES.

ONE PAIR of 16 in. horizontal WINDING ENGINES.

ONE PAIR of 15 in. horizontal WINDING ENGINES.

ONE PAIR of 12 in. horizontal WINDING ENGINES.

ONE PAIR of 10 in. horizontal WINDING ENGINES.

ONE PAIR of 7 in horizontal WINDING ENGINES.

The above engines are now ready for delivery, and fitted with winding drum and brake gear to each pair of engines.

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- Strength of Materials and of Elementary Constructions,
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- Heat and its Applications,
- Mixtures of Gases and Vapours,
- Steam Engines and Boilers,
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The volume contains an abundance of formulas of very simple construction, with numerous verbal rules, most of them original, by the aid of which calculations may be effected with certainty and ease. It also comprises above 300 tables, carefully calculated and of manifest usefulness.

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Is the MOST ECONOMICAL and POWERFUL EXPLOSIVE for every kind of MINING and QUARRYING OPERATIONS; for blasting in hard or soft, wet or dry ROCKS; for clearing land of TREE ROOTS and BOULDER STONES; for rending massive BLOCKS of METAL; for SUBAQUEOUS and TORPEDO purposes; and for recovering or clearing away of WRECKS, &c.

ITS SAFETY is evidenced by the total ABSENCE OF ACCIDENTS in transit and storage; it is insensible to heavy shocks its GIANT POWER being only fully developed when fired with a powerful percussion detonator, and hence its great safety.

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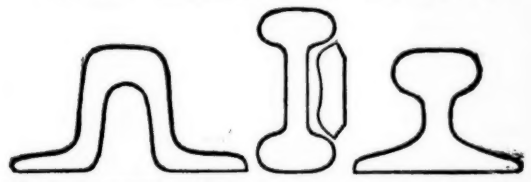

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THE EXTRAORDINARY ADVANCE in the PRICE of COALS has DIRECTED more ATTENTION to WATER POWER, and to the BEST MANNER of APPLYING IT. For many years it has been, to a great extent, neglected and undervalued. One great objection to it has been the variable nature of most streams in these countries, having abundance of water during the winter half-year, and very little in the dry season. No kind of wheel hitherto known was able to give the proper proportion of power from the smaller quantities of water, so that it became the practice very generally to use steam entirely during the summer half of the year, letting the water go to waste. This is now completely prevented, and the full available power can be obtained from a stream at every season by using

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This wheel (which is now largely in use in England, Scotland, and Ireland) is the only one yet invented which gives proportionate power from both large and small quantities of water. It can be made for using a large winter supply, and yet work with equal efficiency through all variations of quantity down to a fifth, or even less if required. It is easily coupled to a steam-engine, and, in this way always assists it by whatever amount of power the water is capable of giving, and, therefore, saves so much fuel.

This Turbine is applicable to all heights of fall. It works immersed in the tail-water, so that no part of the fall is lost, and the motion of the wheel is not affected by floods or back-water.

References to places where it is at work will be given on application to the makers—

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THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
1500	Alderley Edge, c, Cheshire*	10 0 0	—		12 11 8	0 5 0	Jan. 1876
15000	Balmynheer, t, Wendron (4000 to is.)	1 0 0	—		0 2 0	0 2 0	Nov. 1875
5000	Bampfylde, c, i, mn., Devon*	1 0 0	1⅝	1⅜ 1⅝	0 2 0	0 2 0	June 1873
200	Botallack, t, c, St. Just§	119 5 0	30	25 30	619 15 0	5 0 0	Aug. 1872
4000	Brookwood, c, Buckfastleigh	1 16 0	2½	2¼ 2½	3 16 0	0 2 0	Nov. 1875
2000	Bryn Alyn,* l, Denbigh. (10l. sh.)	8 0 0	8½	8 8½	0 7 0	0 7 0	Jan. 1877
6848	Cargoll, s-l, Newlyn§	6 6 0	4½	4 4½	4 16 3	0 12 6	Oct. 1872
6400	Cashwell, l, Cumberland*	2 10 0	2½	2½	1 9 6	0 2 0	Aug. 1876
1000	Carn Brea, c, t, Illogan†§	36 0 0	36	32 34	308 0 0	1 0 0	Feb. 1874
2450	Cook's Kitchen, t, Illogan†§	23 9 9	3½	3 3½	11 17 0	0 7 6	Jan. 1873
10240	Devon Gt. Consols, c, Tavistock†*	1 0 0	4¼	3⅞ 4⅛	116 10 0	0 12 0	May 1872
4296	Dolcoath, c, t, Camborne	10 14 10	36	32 33	111 6 3	0 5 0	April 1877
5000	East Black Craig,* l., Scotland	5 0 0	6¼	5¾ 6¼	0 10 0	0 10 0	Feb. 1877
6144	East Caradon, c, St. Cleer†	2 14 6	1¼	¾ 1¼	14 19 0	0 2 0	Oct. 1872
300	East Darren, l, Cardiganshire	32 0 0	—		235 10 0	1 0 0	Aug. 1876
6400	East Pool, t, c, Illogan	0 9 9	11	10 11	15 0 3	0 2 0	Mar. 1877
2800	Foxdale, l, Isle of Man*†	25 0 0	—		82 5 0	0 10 0	Feb. 1876
40000	Glasgow Cara., c* [30,000 £1 p., 10,000 15s. p.]		1¼	1 1¼	0 12 10	0 0 6	Mar. 1877
15000	Great Dyliffe,* l, Montgomeryshire	4 0 0	4	3 4	0 2 6	0 2 6	Apr. 1876
15000	Great Laxey, l, Isle of Man*	4 0 0	22	20 21	21 13 0	0 10 0	Apr. 1877
615	Great Retallack, l, bl, Perranzabuloe	5 18 6	1½	1 1½	0 1 6	0 1 6	May 1876
25000	Great West Van, l, Cardigan,* pref.	2 0 0	½	2 2⅛	0 2 0	0 1 0	Aug. 1874
6400	Green Hurth, l, Durham*	0 6 0	2¾	2½ 2¾	1 12 0	0 4 0	Oct. 1874
20000	Grogwinion, l, Cardigan*	2 0 0	4½	3 4	0 12 0	0 4 0	Feb. 1877
9830	Gunnislake (Clitters), t, c	5 5 0	2⅝	2½ 2¾	0 13 9	0 1 0	Oct. 1876
1024	Herodsfoot, l, near Liskeard†	8 10 0	3½	3 4	62 5 0	0 15 0	Oct. 1872
18000	Hingston Down, c, Calstock*†	1 0 0	¾	½ ¾	0 1 0	0 1 0	Nov. 1875
60000	Holmbush, a, c, s-l, Callington*	1 0 0	1¾	1½ 1¾	0 1 6	0 0 6	April 1877
2500	Killaloe, s, Tipperary	1 0 0	—		0 3 11½	0 0 8	Mar. 1873
20000	Leadhills,* l, Lanarkshire	6 0 0	7	6 6½	0 6 0	0 6 0	April 1877
400	Lisburne, l, Cardiganshire	18 15 0	80	60 70	580 10 0	1 0 0	Mar. 1877
14000	Llanidloes,* l, Montgomery	3 0 0	3	2 3	0 9 0	0 4 6	Nov. 1876
5120	Lovell, t, Wendron	0 16 0	—		0 17 6	0 1 6	Jan. 1874
9000	Marke Valley, c, Linkinhorne	5 0 6	1	¾ 1	7 15 0	0 2 0	Jan. 1876
11000	Melindur Valley, l, Cardigan*	3 0 0	1½	1 1½	0 7 2	0 3 7	Jan. 1875
9000	Minera Mining Co., l, Wrexham*	5 0 0	12		67 0 2	0 4 0	May 1877
20000	Mining Co. of Ireland, cl, c, l*	7 0 0	5½	5⅜ 5½	23 11 6	0 3 6	Jan. 1876
512	North Busy, c, Chacewater	3 9 6	8½	8 8½	0 10 0	0 10 0	Dec. 1875
10289	North Hendre, l, Wales	2 10 0	—		1 7 6	0 2 6	Dec. 1876
2000	North Levant, t, c, St. Just§	12 2 0	—		4 13 0	0 12 0	Sept. 1873
27855	Old Treburgett,* s-l, ordinary shares	1 0 0	—		0 0 9	0 0 9	Feb. 1874
9258	Old Treburgett,* s-l (10 per ct. pref.)	0 10 0	⅜	⅛ ⅜	0 1 4½	0 0 6	July 1874
5000	Penhalls, t, St. Agnes	3 0 0	2¾	2½ 2¾	3 13 6	0 2 0	July 1875
6000	Pennant, l, bar, North Wales*	5 0 0	6	5½ 6	0 5 0	0 5 0	Mar. 1877
45793	Penstruthal,* t, c, Gwennap	2 0 0	⅝	½ ⅝	0 2 8	0 0 8	Nov. 1875
12000	Phœnix, & W. Phœnix, t, c, Link.§	3 4 9	4¼	4 4¼	2 9 6	0 4 0	Nov. 1872
18000	Prince Patrick,* s-l, Holywell	1 0 0	2¼	1¾ 2¼	0 14 0	0 1 3	Jan. 1876
511	Providence, t, Lelant†§	21 6 7	—		104 12 6	0 10 0	Sept. 1872
12000	Roman Gravels, l, Salop*	7 10 0	13	12 13	7 1 6	0 8 6	Mar. 1877
512	South Caradon, c, St. Cleer	1 5 0	130	120 130	736 10 0	2 10 0	April 1877
6123	South Condurrow, t, c, Camborne‡	6 5 6	7¾	7¼ 7½	2 6 0	0 4 0	Jan. 1877
12000	St. Harmon,* l, Montgom	3 0 0	3½	2¾ 3¼	0 3 0	0 3 0	Jan. 1877
10000	So. Pr. Patrick,* s-l (8000 sh. issued)	1 0 0	—		0 7 0	0 1 0	Oct. 1875
12000	Tankerville, l, Salop*	6 0 0	8¾	8¼ 8¾	4 17 0	0 5 0	Dec. 1876
6000	Tincroft, c, t, Pool, Illogan†	9 0 0	19	17 18	50 3 6	0 5 0	Mar. 1877
15000	Van, l, Llanidloes*	4 5 0	37 xd	35 37	2 15 6	0 16 0	April 1877
3900	W. Chiverton, l, Perranzabuloe†	12 10 0	17	16 17	55 0 0	0 10 0	Jan. 1877
1783	West Poldice, St. Day	10 0 0	13	11 13	1 19 0	0 4 0	July 1876
512	West Tolgus, c, Redruth	95 10 0	62½	59 61	18 15 0	1 0 0	Feb. 1877
2048	West Wheal Frances, t, Illogan	27 13 9	4½	4 4½	3 12 6	0 5 0	Oct. 1872
12000	West Wye Valley,* l, Montgomery	3 0 0	3	2 3	0 6 0	0 3 0	Nov. 1876
512	Wheal Basset, c, Illogan†§	19 2 6	6	4 6	638 10 0	1 10 0	Aug. 1872
1024	Wheal Eliza Consols t, St. Austell	20 0 0	—		10 0 0	4 0 0	Feb. 1877
2048	Wheal Jane, t, Kea	2 13 10	1¾	1½ 1¾	8 5 0	0 5 0	July 1875
4295	Wheal Kitty, t, St. Agnes	5 4 6	2½	2 2½	11 19 6	0 2 6	Dec. 1874
25000	Wh. Newton, a, c, s, t, Harrowbarrow*	1 0 0	3	2½ 3	0 0 6	0 0 6	April 1877
80	Wheal Owles, t, St. Just§	86 5 0	140	130 140	522 10 0	4 0 0	Aug. 1872
6000	Wheal Prussia, t, Redruth	2 0 0	4¾	4¼ 4¾	0 3 0	0 2 0	Dec. 1875
25000	Wicklow c, sul, i, Wicklow	2 10 0	2	1⅞ 2	52 9 0	0 2 6	Mar. 1872
10000	Wye Valley, l, Montgomery*	3 0 0	4	3 4	0 10 6	0 4 6	Oct. 1876

FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
85500	Alamillos, l, Spain*†	2 0 0	1¾	1¼ 1¾	1 17 3	0 1 0	Mar. 1877
30000	Almada and Tirito Consol., s*†	1 0 0	½	¼ ⅜	0 6 3	0 1 0	May 1876
20000	Australian, c, South Australia†	7 7 6	2¼	1¾ 2¼	0 18 0	0 2 6	Aug. 1876
10000	Battle Mountain,* c, (6240 part pd.)	5 0 0	—		0 10 0	0 10 0	Nov. 1872
15000	Bird-eye Creek, g, California*	4 0 0	⅞	¾ ⅞	0 14 0	0 2 6	June 1874
12320	Burra Burra,* c, So. Australia	5 0 0	—		70 0 0	0 10 0	Oct. 1872
20000	Cape Copper Mining,*† So. Africa	7 0 0	41	39 41	27 15 0	1 0 0	Mar. 1877
40000	Cedar Creek, g, California*	5 0 0	¾	½ ¾	0 5 0	0 2 6	June 1873
15000	Chicago, s, Utah*	10 0 0	4¾	4 4½	2 8 0	0 4 0	Nov. 1876
65000	Colorado United, s-l, Colorado*†	5 0 0	2	1¼ 1¾	0 13 6	0 4 0	Jan. 1875
10000	Copiapo, c, Chili* (£20 shares)	16 15 0	—		7 8 5	0 2 6	Jan. 1876
100000	Don Pedro North del Rey*†	0 16 0	½	¼ ½	2 5 9	0 2 0	Mar. 1872
23500	Eberhardt and Aurora, s, Nevada*†	10 0 0	8½	7¾ 8¼	1 8 0	0 3 0	Dec. 1876
50000	Emma,* g, s, Utah	20 0 0	⅝	⅜ ⅝	3 12 0	0 6 0	Dec. 1872
70000	English and Australian, c† S. Aust.	2 10 0	1½	1¼ 1½	2 18 9	0 2 0	Mar. 1876
30000	Flagstaff, s, Utah*	10 0 0	2½	2 2½	4 2 0	0 5 0	July 1873
25000	Fortuna, l, Spain*†	2 0 0	6½	6 6½	6 9 2	0 6 8	Mar. 1877
55000	Frontino & Bolivia, g, New Gran.*†	2 0 0	1¾	1½ 1¾	0 1 0	0 1 0	June 1876
30000	Gold Run, hyd.	1 0 0	—		0 2 4	0 0 4	Oct. 1872
68000	Kapunda Mining Co. Australia†	1 8 0	—		0 2 4	0 0 6	June 1873
20000	Last Chance, s,* Utah	5 0 0	¾	¼ ¾	0 14 0	0 2 0	July 1873
15000	Linares, l, Spain*†	3 0 0	6¼	5½ 6	16 17 2	0 9 0	Mar. 1877
65000	London and California, g*†	2 0 0	¾	½ ¾	0 1 0	0 1 0	July 1875
7837	Lusitanian, Portugal*† (£5 shares)	3 10 0	—		1 11 6	0 1 6	Mar. 1873
5000	Mammoth Copperopolis of Utah, c, s	10 0 0	—		0 5 0	0 5 0	Dec. 1872
5000	Mountain Chief, s, Utah*	10 0 0	—		0 4 0	0 4 0	Jan. 1873
18000	Prussian Mining & Ironworks, cl, i.	30 0 0	—		6 0 0	3 0 0	July 1873
10000	Pontgibaud, s-l, France†	20 0 0	27	25 27	23 1 1	1 11 1	Nov. 1876
100000	Port Phillip, g, Clunes*†	1 0 0	½	⅜ ½	1 8 0	0 1 0	Jan. 1872
54000	Richmond Consols, s, Nevada*†	5 0 0	6	5½ 6	3 9 0	0 7 6	Oct. 1876
40000	Santa Barbara,* g, Brazil	0 10 0	2¼	1¾ 2¼	0 2 6	0 1 3	Oct. 1876
120000	Scottish Australian Mining Co.*†	1 0 0	2¼	2 2¼	17½ per cent.		Nov. 1876
80000	Scottish Austral. Mining Co., New	0 5 0	⅝	⅜ ⅝	17½ per cent.		Nov. 1876
112500	Sierra Buttes, g, California*†	2 0 0	2	1½ 2	1 16 0	0 2 0	Oct. 1876
60000	South Aurora, s, Nevada*	5 0 0	⅜	¼ ⅜	0 14 2	0 2 0	Nov. 1873
£253000	St. John del Rey*† (£5 stock and multiples dealt in)			260 290	½ year	20 p. ct. for	Dec. 1876
20000	Tolima, g, s* So. America	5 0 0	3¼	3 3¼	0 11 6	0 6 6	May 1874
25000	Victoria (London)*, g, Australia	1 0 0	1¼	1 1¼	0 11 10½	0 0 10	Aug. 1876
15000	Western Andes, s,* New Granada	5 0 0	—		12 per cent. per an.		July 1876
21300	W. Prussian (5500 pref. sh. 10l. paid)	10 0 0	11¼	10¾ 11¼	1 4 0	0 8 0	April 1877

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Clos. Pr.	Last Call.
20000	Anglo-Australian, g, Victoria*	2 10 0	—		Fully pd.
5000	Anguilla Phosphate, West Indies (4000 issued)	10 0 0	—		Fully pd.
12000	Argentine, g, Argentine Republic	5 0 0	5	4 4½	Fully pd.
10000	Australian Central, g* (also 6000 deferred shares)	1 0 0	—		Fully pd.
3000	Bellavista, s, Peru* (£10 shares)	10 0 0	—		Fully pd.
30000	Blue Tent, hyd., California	5 0 0	3¼	3 3¾	Fully pd.
25000	Cesena Sulphur Company, Romanga, Italy*	10 0 0	—		Fully pd.
50152	Chontales, g, s, Nicaragua*†	2 0 0	⅜	¼ ⅜	Fully pd.
16000	Condes of Chili, s-l	5 0 0	5¼	4¼ 4¾	Fully pd.
85000	Excelsior Hydraulic Gold Washing Co., California*	6 0 0	—		Dec. 1871
100000	Exchequer, g, s, California*†	1 0 0	2	1½ 1¼	Fully pd.
40000	Holcombe Valley, g,* California	1 0 0	—		July 1873
6000	Hornachos,* s-l, (£10 shares) Spain	10 0 0	13¾	13¾ 13¾	Jan. 1874
20000	Imperial Brazilian Collieries, Brazil*	5 0 0	—		Fully pd.
100000	I. X. L., g, s, California*	1 0 0	1⅛	⅞ 1	Fully pd.
60000	Javali, g, Nicaragua*	2 0 0	½	⅜ ½	Fully pd.
3500	La Manche, l, Newfoundland	10 0 0	—		Fully pd.
12000	Lanestosa,* l, z, Viscaya, Spain (£2 shares)	1 15 0	—		Mar. 1876
15000	Malabar, g, Colombia* (67165 issued)	1 0 0	⅞	⅝ ⅞	Fully pd.
40000	Malpaso, g, Colombia* (7400 pref. shares, fully paid)	1 0 0	⅝	⅜ ⅝	Fully pd.
12000	Menzenberg, c, Honnef, Germany*	5 5 0	—		Fully pd.
4588	New Bensberg, i, l, Germany	5 0 0	par		Nov. 1876
66000	New Quebrada, c, Venezuela*	5 0 0	4½	4¼ 4½	Fully pd.
20000	New Zealand Kapanga, g, Coromandel*	5 0 0	2¾	2¼ 2¾	Fully pd.
3000	Oregon,* g, Oregon, U.S. (preference shares)	4 0 0	4½	4 4¼	Sept. 1875
10000	Panulcillo, c, Chili*† (£80000 debentures)	4 0 0	1¾	1¼ 1¾	Fully pd.
80000	Pestarena United, g, Italy*†	3 0 0	¼	⅛ ¼	Fully pd.
80000	Providencia and New Rosario, s, Mexico*	1 0 0	—		Fully pd.
50000	Rica, g, Colombia* (40000 issued)	1 0 0	¼	⅛ ¼	Fully pd.
£2,181,000	Rio Tinto,* c, Huelva, Spain	Stock	63½	59 61	Fully pd.
100000	Rossa Grande, g, Brazil*† (£1 shares)	0 19 0	⅛	⅛	July 1872
30000	Russia Copper, Orenburg and Ufa*†	10 0 0	2¼	1¾ 2¼	Fully pd.
25000	San Pedro, c, Chili*	2 0 0	⅞	⅝ ⅞	Fully pd.
10000	Silver Plume, s, Colorado*	1 0 0	—		Fully pd.
37500	Snowdrift, s, Colorado*	2 0 0	—		Fully pd.
30000	Tecoma, s, Utah*	10 0 0	½	⅜ ⅝	Fully pd.
20000	Thornhill Reef, g, Australia*	1 0 0	—		Fully pd.
43174	United Mexican, s, Mexico*†‡	28 15 3	2½	2 2½	May 1875
14000	Utah, g, s-l, Utah*	5 0 0	—		Fully pd.
75000	Yorke Peninsula, c, South Australia	1 0 0	⅜	⅛ ⅜	Fully pd.
40000	Yorke Peninsula, c, South Australia Preference	1 0 0	1	¾ 1	Fully pd.

§ Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

	Closing Prices.	
Argentine, 1868, 6 per cent.	63	65
Bolivia, 6 per cent.	18	20
Brazilian, 1865, 5 per cent.	91	92
Chilian, 1866, 7 per cent.	99	102
City of Providence, 5 p.c. coupon bonds	98	100
Egyptian, 1862, 7 per cent.	45	47
Do., 1868, 7 per cent.	45	47
Do., 7 per cent., V.M.L.	55	60
Do., 9 per cent. guar.	62	67
Do., 7 per cent., K.M.L.	33	34

	Closing Prices.	
Foreign and Col. Gov. Trust, 6 p. cent.	60	70
Do., 5 per cent., 2d issue	45	50
Do., 6 per cent., 3d issue	50	60
Do., 1872, 4th issue	50	55
Do., 1873, 5th issue	45	50
Peruvian, 1870, 6 per cent.	15	17
Do. 1872, 5 per cent.	12	14
Russian, 5½ per cent. L. Mort.	—	—
Spanish, Quicksilver Mort. 5 p. cent.	89	92
United States Mort., 6 per cent.	93	94

NON-DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr.
40000	Aberdaunant, l, Llanidloes*	1 0 0	—	
10000	Aberystwith,* s-l, Cardigan	5 0 0	—	
7800	Alvig. & Burng.,* t, St. Aust. (3l. sh.)	2 10 0	3½	3⅛ 3⅜
18000	Ambrose Lake, t, c, Liskeard	1 18 6	—	
12000	Assheton, l, Carnarvonshire*	5 0 0	2	1¾ 2
50000	Ballycummisk,* c, Schull	2 0 0		
12000	Bedford United, c, Tavistock	1 19 6	¾	⅝ ¾
28000	Belstone,* c, Devon (27,000 fy. pd.)	1 0 0	2¾	2¼ 2¾
15000	Blaen United,* s-l, Cardigan	1 0 0	—	
3937	Blue Hills, t, c, St. Agnes	3 7 6	—	
30000	Bodidris,* l, bl, Denbighshire	1 0 0	1¼	1 1¼
2000	Bowden Hill,* mn	1 0 0	—	
6000	Bradwell Moss Rake	1 0 0	1⅛	⅞ 1⅛
30000	Caldbeck Fells, l, Cumberland*	2 0 0	—	
15000	Cathedral, t, c, Gwennap*	1 10 0	1½	1 1½
20000	Central Foxdale, l, I. of Man* (2l. sh.)	1 0 0	—	
10000	Central Van,* l, bl, Llanidloes	5 0 0	—	
128	Clementina, l, Llanrwst	20 0 0	40	35 40
7500	Combellack,* t, Wendron	2 0 0	—	
6000	Combmartin, s-l, North Devon	0 5 0	⅝	½ ⅝
24[illegible]0	Court Grange, s-l., Cardiganshire	0 15 0	1⅛	1 1⅛
20000	Cwm Dwyfor,* c, s-l, Carnarvonsh	0 15 0	—	
3000	Cwmystwith (New) [5l. shares]	4 0 0	—	
512	D'Eresby Mountain, l, bl, Llanrwst	20 0 0	15	20 25
10000	Denbighshire Consolidated, l*	3 0 0	3	2½ 3
12000	Derwent,* l, Durham	4 0 0	—	3 3½
656	Ding Dong, t, Gulval	51 9 6	—	
10000	Dubby Syke, l, Durham*	0 12 6	½	½ ¾
4000	East Chiverton, l, Perranzabuloe	6 14 6	2½	2 2½
6000	East Goginan, l, Cardigan	2 0 0	—	
18000	East Van, l, Llanidloes*	5 0 0	6½	6 6½
20000	Elgar,* s-l, Cardiganshire	1 0 0	1¼	1 1¼
5000	Frank Mills, l, Christow	5 6 0	⅝	½ ⅝
8000	Fronveilan, l, Mont.* [4000 sh. fy. pd.]	1 0 0	—	
3950	Gawton, c, Tavistock	4 3 6	⅝	⅜ ⅝
12000	Glan Clwyd,* l, Gwyddelwern	1 0 0	—	
14000	Glenroy,* s-l, Isle of Man	4 0 0	1½	1¼ 1½
10000	Glyn,* l, Llanidloes	2 0 0	2	1¾ 2
12000	Goginan, & Level Newydd, Card., l	2 10 0	—	
100000	Gold, g, Merionethshire	1 0 0	—	
20000	Goreu,* s-l, Carmarthen	1 0 0	1¼	1⅛ 1¼
7500	Gorsedd and Merllyn Cons., l, Flint	2 10 0	5¼	5 5½
20000	Gt. E. Foxdale, l, I. of Man (1l. sh)	0 15 0	—	
9500	Great Pant-y-Pydew, l, Holywell	2 0 0	—	
6000	Gt. Wheal Eleanor, t, North Bovey	1 0 0	3	2 3
18000	Grosvenor, l, Holywell (£1 sh.)	0 15 0	—	
10000	Harehope Gill,* l, Durham (£1 sh.)	0 5 0	—	
6400	Harwood,* l, Durham	0 15 0	1	¾ 1
5000	Hush Eisteddfod Minera,* l	2 0 0	—	
200	Islay,* l, Scotland	28 0 0	—	
6000	Killifreth, t, Chacewater	1 18 0	⅞	¾ ⅞
25000	Kingston Con., s-l, Stoke Climsland	1 0 0	—	
12000	Ladywell,* l, Salop	2 10 0	1¼	1 1¼
12000	Ditto, 10 per cent. pref., 1l. each	0 5 0	⅜	¼ ⅜
2500	Levant, c, t, St. Just	9 6 6	—	
25000	Llanrhaiadr, l, Montgomery*	2 0 0	—	
30000	Llanrwst,* l, Carnarvon	2 0 0	—	
15000	Llwyn Teify,* s-l, Cardigan	1 0 0	—	
6000	Medlyn Moor, t, Wendron	1 17 4	2	2
10000	Mellanear Copper, Hayle*	1 0 0	—	
11000	Monydd Gorddu, l, Cardigan* (Red.)	5 0 0	5¼	5 5¼
12000	Mount's Bay, c, Marazion	1 0 0	—	
25000	Nant-y-Ronen, s-l, Cardigan*	1 0 0	—	
15000	Nascent Copper*	1 0 0	—	
12000	Neptune,* c, Perranuthnoe	0 5 0	—	
20000	New Consols, s, a, Stoke Climsland*	3 0 0	—	
8000	New Dolcoath, t, c, Camborne*	8 0 0	1¼	1⅛ 1¼
20000	New East Foxdale, s-l, Isle of Man	0 15 0	—	
16000	New Fowey Consols, t, St. Blazey*	3 0 0	2	1⅛ 2
1492	New Hendra, t, Breage	2 19 0	1⅜	1¼ 1⅜
3200	New South Merllyn, l, Flint*	2 10 0	2	1½ 2
4000	North Cornwall, l, Cornwall	5 0 0	5¼	5 5¼
17000	North Laxey,* Isle of Man	2 0 0	⅞	¾ ⅞
20000	North Prince Patrick,* l, Holywell	1 0 0	1¼	1 1¼
5936	North Treskerby, c, St. Agnes	3 17 10	—	
2000	North Wheal Towan, t, c, Illogan	1 19 6	—	
6000	Old Talargoch, l, Flintshire*	2 0 0	—	
2500	Old Tincroft, c, t, Lelant*	4 0 0	4	3 4
6400	Oola Hills,* s-l, Limerick	5 0 0	—	
12000	Pandora,* l, Carnarvon	2 0 0	—	
16923	Parys Mountain,* c, Anglesea	3 0 0	½	⅜ ½
4000	Pateley Bridge, l, Yorkshire	5 0 0	2½	2¼ 3
6000	Pedn-an-drea Consols, t, Redruth	5 0 0	7	6¾ 7
12000	Pennerley, l, Shropshire*	2 0 0	⅝	½ ⅝
30000	Perkins Beach, l, Shropshire	1 0 0	1¼	1 1¼
12000	Plynlimmon, l, Llanidloes*	2 0 0	½	⅜ ½
648	Polrose, t, Breage	21 0 0	—	
10000	Port Nigel,* s-l, Carnarvonshire	2 0 0	2½	2 2½
2000	Prideaux Wood, t, Llanivery	5 0 0	—	
12800	Prince of Wales, c, Calstock‡	1 19 6	½	⅛ ⅜
10000	Red Rock,* l, Cardigan	2 0 0	2¼	1¾ 2¼
6000	Relistian Consols, c, Gwinear	0 10 0	¾	½ ¾
15000	Rookhope, l, Durham*	1 10 0	1⅛	⅞ 1
3000	Russell, s-l, Swymbridge	0 6 0	—	
5000	Silvercross,* c, t, Marazion	1 0 0	¾	½ ¾
4200	Snowbrook, s-l, Montgomery	5 0 0	5¼	5⅛ 5¼
5000	South Carn Brea, c, t, Illogan	3 10 0	⅜	¼ ⅜
[illegible]000	So. Cwmystwith, l, Cardiganshire	2 0 0	3½	2½ 3½
3000	South Darren, l, Cardigan*	1 10 0	—	
512	South Dolcoath, c, t, Redruth	12 5 0	1⅜	1 1¼
18000	South Roman Gravels, l*	1 10 0	1¼	¾ 1¼
6000	South Roskear, t, c, Camborne	6 10 0	5	4 5
6000	South Tolcarne, t, c, Camborne	1 9 0	¾	½ ¾
937	South Wheal Crofty, c, Illogan	36 10 10	14	12 14
4500	South Wh. Frances, c, Illogan†	7 4 4	1	⅝ ⅞
432	Spearn Moor, t, Penzance‡	46 17 9	—	
6000	St. Lawrence, Amal., l, Flintshire*	2 0 0	—	
10000	St. Patrick, l, Halkin, Holywell*	1 0 0	1½	1⅛ 1⅜
6000	Success, &c., l, Derb. (12,000l. called)	1 0 0	—	
16000	Sunnyside,* l, Durham	2 0 0	2½	2 2½
30000	Talybont,* s-l, Talybont	1 0 0	2¼	2 2¼
6400	Teesdale,* l, Durham	1 0 0	1	1¼ 1½
14000	Teign Valley, l, bar., Bridford	1 0 0	—	
10000	Temple, l, Cardigan*	1 0 0	1½	1 1¼
12000	Trebeigh Consols, s-l, St. Ive	0 7 6	½	⅜ ½
5000	Treleigh Wood, t, Redruth	5 16 0	—	
547	Treiyon Consols	15 0 0	⅝	½ ⅝
12000	Trethellan, s-l, Crantock*	2 0 0	—	
2561	Trumpet Consols, t, Helston§	10 0 0	—	
640	Truro*, l, Nerquis, Flintshire	10 0 0	10	10
10000	Tyn-y-Fron,* l, Cardigan	1 0 0	1	1 1⅛
25000	Unity Wood, t, c, Kenwyn	4 5 6	½	⅜ ½
20000	Van Consols, l, Llanidloes*	2 10 0	2¼	1¾ 2
12000	West Assheton, l, Carnarvon	1 0 0	1	¾ 1
6000	West Basset, c, Illogan‡	5 6 8	4	3¼ 3¾
20000	West Bryn Celyn,* l, Flintshire	1 0 0	—	
5500	West Combmartin, s-l, North Devon	1 0 0	1⅛	1 1⅛
7000	Ditto	0 2 6	½	⅛ ¼
3000	W. Craven Moor, l, Pateley Bridge*	10 0 0	13	12 13
5000	West Godolphin, t, c, Breage	2 6 0	3¾	3¼ 3¾
12000	West Goginan,* Cardiganshire	2 0 0	⅜	½ ¾
15000	West Great Work, t, Breage*	2 0 0	2¼	2⅛ 2¼
10000	West Llangynog, s-l, Montgomery	2 0 0	—	
12000	W. Maria & Fortescue, t, c, Lamer.	4 14 0	⅜	¼ ⅜
3000	West Mary Ann, l, Menheniot	0 3 6	⅜	⅛ ⅜
50000	West Milwr, s-l, Flint	1 0 0	—	
20000	West Pateley Bridge, l, Yorkshire	1 0 0	1¼	1 1¼
10000	West Roskear, t, s-l, bl, c, Camborne	0 12 0	3	2½ 3
15000	W. Tankerv*, l. (in 3000s .15p.c.pref.)	3 0 0	1⅜	1¼ 1½
15000	West Treasvean,* c, t, Gwennap	1 0 0	1¼	1⅛ 1⅜
3000	West Wheal Peevor, t, Redruth	0 10 0	2¾	2½ 2¾
600	West Wheal Seton, c, Camborne†	47 0 0	35	30 35
6000	Wheal Agar, c, Illogan	11 10 0	3¼	3¼ 3¾
6000	Wheal Argus, t, Sancreed	0 10 0	—	
6000	Wheal Coates, t, St. Agnes	2 0 0	2	1½ 2
6000	Wheal Crebor, c, Tavistock	4 1 0	3	2½ 3
8400	Wheal Emma, t, c, Buckfastleigh	1 10 0	—	
50	Wheal Fowey and East Eliza, t	100 0 0	110	100 110
5179	Wheal Grenville, c, Camborne*	2 8 6	1⅜	1 1¼
12000	Wh. Mary Hutchings,* t, Plympton	1 14 0	—	
3000	Wheal Peevor, t, Redruth	6 7 6	3	2½ 3
12000	Wheal Russell, c, Tavistock	2 1 6	⅜	¼ ⅜
4096	Wheal Uny, t, c, Redruth	13 6 6	1⅞	1⅝ 1⅞
480	White Cliff,* l, Llanrwst	4 0 0	4	4

b, blende; cl, coal; c, copper; g, gold; l, lead; s, silver; sl, slate; s-l, silver-lead; t, tin; z, zinc.

* Limited Liability Companies; † quoted on the Stock Exchange; ‡ have paid dividends.

IRON AND COAL COMPANIES.

Shares.	Company.	Paid.	Prices.
£100	Abbot, John, and Co. [L.]	£75 0 0	3¼
15	Albion Steel and Wire Co. [L.]	14 0 0	15
5	Alltami Colliery Co. [L.]	5 0 0	par
100	Ashbury Co. [L.]	90 0 0	40
10	Bagnall, John, and Sons [L.]	10 0 0	6¼
10	Benhar Coal Co. [L.]	10 0 0	¼ dis.
50	Bilbao Iron Ore Co. [L.]	50 0 0	23½
10	Bilson & Crump Meadow Coll. Co. [L.]	10 0 0	
4	Blaen Cwmbach Coal Co. [L.]	4 0 0	
50	Blaenavon Iron and Steel Co. [L.]	50 0 0	
100	Bolckow, Vaughan, and Co. [L.]...A	45 0 0	7
50	Bowling Iron Co. [L.]	50 0 0	
50	Britannia Ironworks [L.]	25 0 0	
50	Brown, Bailey, and Dixon [L.]	40 0 0	22
100	Brown, John, and Co. [L.]	70 0 0	par
5	Cakemore Colliery Co. [L.]	5 0 0	
100	Cammell and Co. [L.]	80 0 0	3
20	Cannock and Huntington Coal [L.]	6 0 0	2
10	Cardiff & Swansea St. Coal Co. [L.]	8 0 0	
10	Cardigan Steel and Wire Co. [L.]	8 10 0	
10	Central Swedish Iron and Steel [L.]	10 0 0	1
5	Chapel House Colliery	5 0 0	2¼
50	Charlton Iron Co. [L.]	50 0 0	12
50	Chatterley Iron Co. [L.]	45 0 0	24
10	Chillington Iron Co. [L.]	10 0 0	6¼
1	Clee Hill Colliery Co. [L.]	1 0 0	
10	Consett Iron Co. [L.]	7 10 0	10¼
1	Consett Spanish Ore [L.]	1 0 0	¼ dis.
50	Cooke, William, and Co. [L.]	40 0 0	36
20	Darlington Iron Co. [L.]	10 0 0	9¼
50	Davy Brothers [L.]	22 10 0	9¼
5	Diamond Fuel Co. [L.]	5 0 0	¾
32	Ebbw Vale Co. [L.]	29 0 0	22
100	Fox, Samuel, and Co. [L.]	80 0 0	35
10	General Mining Ass. [L.] (£1 returned)	9 0 0	2
20	Great Western Coal Co. [L.]	17 0 0	
2	Gwyngwillim Colliery Co. [L.]	2 0 0	
15	Hopkins, Gilkes, and Co. [L.]	11 0 0	7¼
50	Knowles, Andrew, and Sons [L.]	17 0 0	¾
10	Llay Hall Coal, Iron, & Firebrick [L.]	10 0 0	10
5	Littledean Woodside Coll. Co. [L.]	5 0 0	
50	Llynvi, Ogmore, & Tondu Co. [L.]	50 0 0	35
10	Lydney and Wigpool Iron Ore [L.]	8 5 0	10
10	Marbella Iron Ore Co. [L.]	10 0 0	7¼
6	Mersey Steel and Iron Co. [L.]	5 0 0	10
10	Midland Iron Co. [L.]	5 0 0	¾
5	Mold Argoed Colliery Co. [L.]	5 0 0	
10	Monkland Iron and Coal Co. [L.]	10 0 0	7¼
4	Mwyndy Iron Ore [L.]	3 10 0	1¼
100	Nant-y-Glo and Blaina (8 p.c. pref.)	100 0 0	21
1	Nerbudda Coal and Iron	0 8 0	¼ dis.
20	New Sharlston Collieries [L.] Pref.	20 0 0	18¼
10	Newport Abercarn Coal Co. [L.]	10 0 0	6¼
10	Northmptn. Coal, Iron & Wagon [L.]	8 0 0	
10	Northfield Iron Co. [L.]	8 0 0	2¼
1	Norton Green Coal Co. [L.]	1 0 0	
35	Palmer's Shipbuilding and Iron [L.]	25 0 0	16
100	Parkgate Iron Co. [L.]	65 0 0	3 dis.
20	Patent Nut and Bolt Co. [L.]	14 0 0	7
20	Patent Shaft and Axletree [L.]	10 0 0	par
20	Pelsall Coal and Iron [L.]	15 0 0	11
50	Phœnix Bessemer Co. [L.]	40 0 0	
50	Rhymney Iron Co. [L.]	50 0 0	21
10	Richards and Co. [L.]	10 0 0	7
100	Sandwell Park Colliery Co. [L.]	100 0 0	
50	Ditto New	10 0 0	20
100	Shotts Iron Co. [L.]	100 0 0	par
100	Sheepbridge Iron and Coal [L.]	55 0 0	4
50	Silkstone & Dodworth Cl. & Iron [L.]	27 0 0	12
20	Skerne Ironworks [L.]	20 0 0	13¼
50	Somorrostro Iron Co. [L.]	50 0 0	10
20	South Wales Coal Co. [L.]	17 0 0	
100	Staveley Iron and Coal Co. [L.]	60 0 0	27
100	Ditto ditto New	10 0 0	4¼
20	South Cleveland Ironworks [L.]	20 0 0	
10	Swansea Valley Steam Coll. Co. [L.]	6 0 0	
100	Thames Iron Company	100 0 0	
50	Tredegar Iron and Coal Co. [L.]	12 0 0	5
25	Ditto B. shares	25 0 0	2
20	Ulverston Mining Co. [L.]	12 0 0	1¼
1	United Bituminous Collieries [L.]	1 0 0	
10	Vancouver Coal [L.]	6 0 0	par
100	Vickers, Sons, & Co. [L.]	100 0 0	35
50	Welsh Ironworks Co. [L.]	50 0 0	
25	W. Cumberland I. and Steel [L.]	20 0 0	11
10	West Mostyn Coal [L.] (12 p.c. pref.)	5 0 0	
5	West Swansea Colliery Co. [L.]	5 0 0	
10	Whitehaven Iron Co. [L.]	10 0 0	
100	Wigan and Whiston Coal Co. [L.]	70 0 0	
100	Wigan Coal and Iron Co. [L.]	75 0 0	

WAGON COMPANIES.

Shares.	Company.	Paid.	Prices.
10	Birmingham Wagon Co. [L.]	10 0 0	21¼
10	Ditto, 2nd issue	4 0 0	5
10	Ditto, pref., 6 per cent.	10 0 0	12¼
20	British Wagon Co. [L.]	10 0 0	2¼
10	Gloucester [L.]	10 0 0	12¼
10	Ditto, 5th issue	5 0 0	1¼
10	Met. Rail. Car. and Wagon Co. [L.]	5 0 0	3¼
5	Ditto, pref., 6 per cent.	5 0 0	5¾
50	Midland	50 0 0	93
20	North Central Wagon Co.	20 0 0	27¼
5	Rail. Car. [L.] (Oldbury)	5 0 0	10¼
5	Ditto, pref., 6 per cent.	5 0 0	6
20	Sheffield Wagon Co. [L.]	15 0 0	3¼
10	Yorkshire Wagon Co. [L.]	10 0 0	4¼

TELEGRAPH COMPANIES.

Shares.	Company.	Paid.	Prices.
"St."	Anglo-American	100 0 0	57¼
10	Brazilian Submarine	10 0 0	6¼
20	Direct United States Cable	20 0 0	11¼
10	Eastern	10 0 0	7¼
10	East. Exten., Australia and China	10 0 0	7½
10	Great Northern	10 0 0	7½
25	Indo-European	25 0 0	17½
10	Mediterranean Extension	10 0 0	2¼
8	Reuters	8 0 0	12
Stk.	Submarine	100 0 0	225
10	West India and Panama	10 0 0	2½
20	Western and Brazilian	20 0 0	5½
$1000	Western Union, 7 per cent. Mort. Bonds	$1000	109

MISCELLANEOUS.

Shares.	Company.	Paid.	Prices.
Stk.	Atlantic and Great Western Leased Lines, Rental Trust	100 0 0	38
25	Austral. Mort. Land and Finance [L.]	5 0 0	4
25	Australian Agricultural	21 10 0	93
10	Avonside Engine [L.]	7 0 0	4
Stk.	Baltimore and Ohio, 6 per cent.	100 0 0	106
Stk.	Cent. of New Jersey Con. Mort.	100 0 0	51
Stk.	Cent. Pacific of Calif., 1st Mort. 6 p.c.	100 0 0	102½
25	City of London Real Property [L.]	12 0 0	1
25	Copper Miners of Eng. (7 p. c. pref.)	25 0 0	
5	Credit Foncier of England [L.]	5 0 0	1¼
5	Diamond Rock Boring	4 10 0	1¼
15	English and Foreign Credit	8 0 0	
16	Fore Street Warehouse [L.]	14 0 0	14
15	Foster, Porter, and Co. [L.]	10 10 0	11
5	Gen. Phos. & Chem. Works Co. [L.]	5 0 0	
1	Glaisdale Whinstone Quarry	1 0 0	
1	Greenhill [L.]	1 0 0	1
17	Hudson's Bay Company	17 0 0	13½
10	Huntington Copper and Sul. Co.	9 0 0	8¼
Stk.	Illinois Central, $100 shares	100 0 0	45
Stk.	Illinois & St. Louis Bridge, 1st Mort.	100 0 0	91
Stk.	Ditto, 2nd Mort., 7 per cent.	100 0 0	58
Stk.	Illinois Cent. Sinking Fund, 5 p. cent.	100 0 0	87
Stk.	Ditto, 6 per cent.	100 0 0	97
7½	Imperial Credit [L.]	7 10 0	7¼
—	Ditto, Surplus Certificate	—	5½
Stk.	Lehigh Val. Con. Mort., A, 6. p. cent.	100 0 0	95
10	Milner's Safe [L.]	10 0 0	9¼
25	National Discount [L.]	5 0 0	10
Stk.	N. Cent. Rail. Con. Mort., 6 per cent.	10 0 0	83
5	Patent Gunpowder Company	5 0 0	4¼
10	Pawson and Co. [L.]	6 0 0	¼ dis.
50	Peninsular and Oriental Steam	50 0 0	38
Stk.	Pennsyl. Gen. Mort. 6 p. cent., 1910	100 0 0	100
Stk.	Ditto, Con. Sink. Fund, 6 p. ct., 1905	100 0 0	89½
Stk.	Scottish Aust. Investment Company	100 0 0	185
Stk.	Ditto, 6 per cent. Preference	100 0 0	121
10	Silber Light (ord. sh.)	10 0 0	
20	Suez Canal shares	20 0 0	
12	Telegraph Construc. & Mainte. [L.]	12 0 0	26¼
5	Ditto, Second Bonus Three per Cents	5 0 0	2⅝
10	Tharsis Sulphur and Copper Co.	10 0 0	22
Stk.	Union Pacific Land Grant, 1st Mort.	100 0 0	95
Stk.	Union Pacific Railway, 1st Mort.	100 0 0	98

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